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## ORIGINAL COMMUNICATIONS.

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### THE NOSE AND THROAT IN THE HISTORY OF MEDICINE.

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(Continued from page 42.)

#### THE HIPPOCRATIC TREATISES.

So completely have the records of Greek medicine before the time of Hippocrates perished, that he seems himself to have created it. It seems to have sprung from him and his associates, like Athene from the head of Zeus, or like the sudden growth of the infant Apollo after tasting of the ambrosial cup from the hand of Themis to have started at once into the full life of a vigorous and fruitful manhood. We may be sure, however, from the cold analysis of historical experience and of philosophical logic that there must have been a long previous condition of growth and development, which can not be traced in the scanty remnants of history left us.

On the authority of Celsus (Lib. I. Proemium) we must accept Hippocrates as really the first medical specialist in our civilization, for he was the first to separate medicine from other sciences and devote himself exclusively to that branch of knowledge, for which, no doubt, as we may judge from reading Plato, he was regarded by other philosophers as lamentably narrow and one-sided. Reasoning from experiences of later ages, we may imagine that after a little time some philosophers, who thirsted after the reputation of progressiveness, acknowledged that this specialization might possibly be excusable, provided the heretic had first spent all the productive years of his youth in the pursuit of inquiry into the nature of the gods and the occult properties of the four cardinal elements, fire, earth, air

Hippocrates as  
a Specialist.

and water. I can not forbear giving here, Celsus' explanation of how it happened that philosophers took up the study of medicine at all, since it is somewhat amusing. He intimates that the old philosophers spent so much of their time in sedentary contemplation and nocturnal vigils that they fell sick, and were forced to resort to the study of medicine to cure themselves.\*

The civilization of the Chaldean and the Parsee, of the Egyptian and even of the Hindu is strange and incomprehensible to us, but we instinctively feel that the Isles of Greece, that Cos, over opposite Abdera is a familiar land, and that there we will find a mental activity into which we are able to enter. When we read in Xenophon's *Anabasis* (III 11 9) that the soldiers cried out when their comrade sneezed "*Ζευ σωσον*" "God save you," immediately comes to our mind the Frenchman's ejaculation "*Dieu vous benisse*" and the Germans' hail "*Gesundheit*."† Turn to Hippocrates' account of the case "In Thasus, the wife of Dealces who was lodged on the plain"‡ and read there his account of a death from fever with cerebral symptoms. No such vivid impression is left on the mind by any other portrayal of the fatal march of a mortal disorder until we find Shakespeare describing in Dame Quickly's patois the death of Falstaff who was "so shak'd of a burning quotidian tertian that it is most lamentable to behold" and how "at the turning o' the tide" she saw him "fumble with the sheets and play with flowers and smile on his fingers end" and noted that "his nose was sharp as a pen," how "a" babbled of green fields" and cried out, "God, God, God, three or four times" and "his feet were as cold as any stone." The wife of Dealces fumbled with the bed clothes and picked at the hairs on them and laughed and there was much talk and again she was silent. Adams (l. c. p. 196) supposed Shakespeare to have derived his description second hand from the celebrated passage in

\* "Ergo etiam post eos, de quibus retuli, nulli clari viri medicinam exercuerunt; donec majore studio literarum disciplina agitari coepit, quae, ut animo praecipue omnium necessaria, sic corpori inimica est. Primoque medendi scientiae sapientiae pars habebatur, ut et morborum curatio, et rerum naturae contemplatio sub iisdem auctoribus nata sit: scilicet iis hanc maxime requirentibus, qui corporum suorum robora quieta cogitatione, nocturnaue vigilia minuerant. Ideoque multos ex sapientiae professoribus peritos ejus fuisse acceptum; clarissimos vero ex iis Pythagoram, et Empedoclem, et Democritum. Hujus autem ut quidam crediderunt, discipulus Hippocrates Coss, primus quidem ex omnibus memoria dignus, ab studio sapientiae disciplinam hanc separavit, vir et arte et facundia insignis." It is needless to say that those acquainted with the writings of Celsus will recognize in this passage his bias towards the vital importance of bodily exercise in therapeutics.

† This ancient custom, however, is older than the Greek civilization.

‡ Epidemics III Sec. 17, case XV. Adams Syd. Edition Genuine Works of Hippocrates All reference to the Hippocratic treatises are to the Littré edition unless otherwise, as here noted.

Hippocrates\* as to the fancies of death, but it seems to me that it bears a much closer resemblance to the description I have alluded to. I do not believe Shakespeare ever had any knowledge of either of these passages in the Hippocratic writings, either first hand or second hand. We are struck by the resemblance of the impressions made on our minds by the words of two masters in the description of similar objective phenomena. It is the stroke of the master artist, the touch of immortal genius which sprang as frequently from the soil of Greece in its Golden Age as it did from that of Britain at the zenith of her literary glory. Such objectivity is not to be found in the Orientals' dream of life. Do we find here an explanation, or part of an explanation, of why the civilization of the Orient, of the Ganges and of the Nile has stood still for 3000 years and can not now be aroused from the slumber of so many centuries? At least we can comprehend somewhat from this objectivity how the virile fructifying aggressive mind of the Ancient Greek furnished a soil for the quick luxuriant growth of seeds from a dying civilization, dying even then with its youth stretching back into the inscrutable past of prehistoric times.

It must be borne in mind that Hippocrates lived in that glorious time of Greek civilization and culture, the golden age of Pericles, that his life overlapped that of Phidias and Praxiteles, of Anaxagoras, Socrates and Democritus, of Æschylus, Euripides, Sophocles and Aristophanes, of Herodotus, Thucydides and Xenophon, of Plato, Aristotle and Demosthenes. Never since, in the history of the world, have there existed in the span of one man's life so many men whose fame still shines in mortal records and whose words still influence the thoughts of men. Such a throng was not to be gathered from all the broad empire of Augustus, nor to be found in the brilliant court of the Grand Monarque, nor among those who flourished in the days of England's Virgin Queen. None can say that the great name of Hippocrates stands less illustrious on the role of medical science than does that of Socrates in philosophy, of Phidias in sculpture, of Demosthenes in oratory, of Thucydides in history, or of Aristotle in science. It is the evidence of the knowledge of the upper air passages and their diseases possessed by this great primeval figure in medicine with which we are now concerned. Among the large number of writings ascribed to Hippocrates, there are only a few which have been acknowledged by all authorities to have been really written by him. Some have been proven, many have been surmised, to have been written by his pre-

The Era of  
Hippocrates.

\* Prognostics 2, Adams.

decessors and successors. It seems probable that some were written by others during his life time who had the benefit of his guidance and of his instruction. However this may be it is not my aim to enter into a general discussion of such matters but rather to bring into prominence those gleams of light thrown upon our subject which have come to us across twenty-five centuries. A reference to the editions of Adams and of Littré and to the works of Galen, will enlighten the reader as to the books which are accredited to Hippocrates himself and as to those which are supposed to have been written by others of his time or school. Some of the passages in the writings of these *Æsclepiadæ* seem ridiculous to us, but we should keep constantly in mind the charity which our successors in their histories will have to extend to the productions of our own times. Indeed, in looking over the various commentaries on Hippocrates from Galen's time to our own, it is curious and not a little amusing to observe how careful each critic is to point out the errors Hippocrates committed in not being in accord with the doctrines of the critic's own time, which are now as obsolete as those of Hippocrates. So little does Hippocrates have to say of the cure of diseases that *Asclepiades*, an early type of the genus charlatan, subsequently ridiculed his system by saying it was the contemplation of death. It is perfectly evident that he recognized the futility of drugs as curative agents, and all his works, especially those which are supposed to be genuine, testify to the persistence with which he studied the symptomatology rather than the pharmacology of disease.

Innumerable facts have been discovered since these early times, and the wonder chiefly is that they should have then been able to reason as acutely as they did from the little actual knowledge they had of normal anatomy or of pathological processes. We have seen from the few extracts I have been able to gather how primitive knowledge of the anatomy and physiology of the upper air passages was. In the Hippocratic treatises themselves we find it little more advanced.

The Destination of Fluids.

In fact, until the writings of Galen, the knowledge of anatomy seems to have been almost nil from a modern standpoint.

"Drink through the pharynx and œsophagus. Larynx to the lungs and trachea. From these to the top of the bladder." This is the literal translation of the Greek text as given in Kühn's edition, but Kühn himself translates it "Potus per fauces et gulam, arteriæ summum, quod larynx dicitur, in pulmonem et arteriam ex quibus summan vesicam." This latter passage occurs in the book on the



"Nature of the Bones (I) which is apparently a collection of notes. In the fragment of the book on "Anatomy" we find it stated that the bronchi terminate at the top of the lungs, being composed of curved rings. Then follows a description of the lungs and of other organs detailed in such a manner that no room is left for the supposition that the writer had any idea that fluids passed through the lungs to the bladder. Again, elsewhere,\* we find, "If any one will give water tintured with a blue color or with vermillion to a thirsty beast to drink, preferably to a swine, for this beast is not fastidious but dirty, and will then cut the beast's throat after the drinking, he will find it colored with the fluid." Nevertheless he says the greater part of it goes to the stomach. At the end of the Fourth Book on Diseases the author distinctly combats the idea that drink passes through the larynx. It is evident, therefore, from these quotations that no one man, but several, wrote the so-called Hippocratic treatises. History tells of the great rewards offered by the Ptolemies for manuscripts of well-known authors for their great library, and nothing seems more certain than that enterprising, and of course highly-respectable "rare-book" dealers, found it more convenient to write than to find hitherto unknown treatises of Hippocrates. The author of the Fourth Book on Diseases says, referring to the epiglottis, that the presence of a process in the form of an ivy leaf prevents liquid from entering the larynx and keeps it in the pharynx. He declared that the sounds emitted on expiration were multiplied by the resonance of the head. The tongue articulates as the air is driven out striking against the palate and the teeth. "All of which shows that it is the air which makes the noise." In the book on the "Flesh" (19) it is recognized that severance of the larynx stops the voice, which is regained when it is reunited.

On the subject of the destination of liquids when swallowed, there is a very curious chapter among Plutarch's "Symposiacs (Book VII). When a line from the poet Alcæus (611, 580 B.C.) was quoted, "Now drench thy lungs with wine, the dog appears"† (Dog Star), Nicias of Nicopolis, a physician, is made to say that Plato should be reproved for the passage in the *Timæus*‡ where he

\* Liber de Corde. Edit. Kühn I, p. 485.

† Vid. Gaisford: Poet. Min. Graec. Vol. III, p. 321, XVIII.

‡ The passage referred to reads "the lung is a soft and bloodless organ, and moreover is full of pores internally, like a sponge, in order that receiving air and drink it may refresh the heart, quiet it and cool the heat which burns it. This is the reason why the channels of the trachea are directed towards the lung, and the lung is placed near the heart." A few lines further on it is evident, however, that Plato recognized that some of the liquids at least go to the stomach, or rather "the region between the diaphragm and the navel."

adopts the same error. He enters into an argument in refutation of the idea that the drink passes into the lungs, and he instances the epiglottis as an apparatus for preventing it. In the discussion which followed Protogenes, the grammarian, claimed that Homer first spoke of the stomach as the receptacle of the food, and of the breath and windpipe as the instruments of the voice, but the discussion on this passage in Homer hinged upon the meaning of the word *φάρυγξ* which we have seen had a very indefinite meaning. Florus quoted many poets, among them Euripides, who affirm with Plato that the drink passes into the lungs and the conclusion of Plutarch's Symposium seemed to be that Plato was right. Florus asserts that not only Hippocrates, but his pupil, Dioxippus, (390 B.C. ?) and Philis-tion, a very ancient physician of Locri, had no other thought. Dioxippus supposed that the epiglottis served to divide the food and drink into the coarser parts which passed into the stomach and the finer parts which passed into the lungs. Aristotle\* did not share this error at all, but distinctly states that the larynx is only for the passage of the air and the voice. From a passage in this symposium Sprengel seems to draw the conclusion that Erasistratus taught that the drink does not pass into the lungs. Now, Plutarch's writings are of a date in the first century of the Christian era, 500 years after the time of Hippocrates and 400 years after the time of Erasistratus. One hundred years after Plutarch we will find even Galen in a modified form entertaining this idea. He says, in reference to it: "If Plato supposed that we take all our drink into our lungs, it is proper to remark that he was ignorant of a very evident matter. If he supposed, however, some part of the drink passing through the trachea is carried to the lungs, he announces a thing possible and like other matters concerning which physicians and philosophers may disagree among themselves." He then proceeds to state that it is quite possible for a small amount of fluid to steal down the sides of the air tubes without producing irritation sufficient to cause a cough.

We may, since we have already digressed somewhat, add here another mention of Hippocrates by Plutarch. † He compliments him as a man of wonderful skill in physic and fit to be imitated by the greatest philosophers, especially as to his ingenuousness for "he confessed publicly that he had mistaken the nature of the sutures

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\* On the Parts and Gait of Animals. III, 111, 4.

† Man's Progress in Virtue.

of the skull,\* and has left an acknowledgement under his own hand; for he thought it very unworthy a man of his profession not to discover where he was in the wrong seeing that others might suffer and err by his authority." Plutarch's comment on this is quite as applicable to-day as in his own time. "And indeed it had been very unreasonable, if he whose business and concern it was to save others and set them right should not have had the courage to cure himself and to discover his own weakness and the imperfections in his own faculty." Quintilian echoes Plutarch's eulogium.†

When we realize that the ancients, Hippocrates, Galen and their followers, knew nothing of the muciparous glands, and of course nothing of the function of these microscopic structures, it is easy to understand the absolute mental necessity for them to find some explanation of the origin of the secretions which bathe not only the respiratory tract but the gastro-intestinal mucous membranes as well. As for the moisture of the lungs, it is natural that they should look for some explanation in the liquids swallowed. This lack of knowledge, as well as a mistaken anatomical observation, led them into another error which persisted still longer. The cribiform plate of the ethmoid bone (the sieve like bone) at the top of the respiratory tract, was usually seen only in the dried specimen by the ancients unfamiliar with dissection of the human body. The idea arose that the humors were distilled in the gland like contents of the cerebral cavities and sifted through the cullender plate of the ethmoid to parts below. If we can find no trace of this idea in Hindu or Egyptian medicine, Herodotus‡ supplies us with indubitable evidence that it existed among the Libyans. He says: "The Libyans, when their children come to the age of four years, burn the veins at the top of their heads. Others burn the veins about the temples. This they do to prevent them from being plagued in their after lives by a flow of rheum from the head and such they declare is the reason they are so much more healthy than other men. In all this I only repeat what is said by the Libyans themselves." This burning, as we shall have occasion hereafter to note, was the sovereign Arabian cure for all diseases.

This idea of the cerebral origin of catarrhs once fixed in the conception of medical men was not detected as an error even by Galen himself, whose anatomical knowledge was so extensive.§

The Origin of  
Catarrhs.

\* Vid. Hippocrates: Epid. V, § 27—cf. De Vuln. Cap. § 12.

† Celsus, from whom probably Plutarch and Quintilian drew their information, remarks in regard to Hippocrates' superiority in this respect over lesser men. "Nam levia ingenia, quia nihil habent, nihil sibi detrahunt." Lib. VIII, Cap. IV.

‡ Liber IV, Cap. 187.

§ Vid. Galen: "De Instrumento Odoratus." Cap. iv.

They supposed that the airs and vapors, as they called them, were inspired through the cribiform plate by the brain acting like a live sponge drawing up into itself not only the moisture but the air of the nasal cavities and then redistilling them. Hippocrates says olfaction takes place through the cribiform plate. The latter he describes as being made of cartilage, soft like a sponge, and is neither flesh nor bone.\* So entirely had this conception of the anatomy and physiology of the cribiform plate taken possession not only of the medical mind, but so completely had it passed into the popular mind, that it was supposed that the mental processes were sluggish in those in whom the faulty excretion led to a clogging of the brain with mucus. Hence, we find in Greek that not only Coryza stands for a cold in the head, but it was the name applied to a fool, a driveller. Still more was this evident in the Latin tongue. "Emunctæ naris" refers to the mental acuteness of the individual because he was supposed to keep his nostrils, the cloaca of the brain, well cleaned out. This is found chiefly in the satirists.

"Hinc omnis pendet Lucilius, hosce secutus  
Mutatis tantum pedibus numerisque, facetus,  
Emunctæ naris, durus componere versus."

Horatii Satira I, IV, 6.

"Obesæ Naris," fatty or obstructed nose, in distinction to "emunctæ naris" referred to mental dullness. Many similar passages may be found in Martial. Hippocrates believed that in order to smell well the nose must be dry, and probably this arose from the observation of obtunded olfaction during a cold. He supposed that the vaporous parts of the inspired air escaped through the sutures of the skull.

Hence we may understand why Hippocrates looked upon the brain, which he described as a gland, as the origin of all catarrhal troubles, naming seven, of the eyes†, of the nose, of the ears, of the stomach, of the throat and lungs, of the spinal cord and of the hips. The acrid humors were distilled to these parts by various routes—to the respiratory and digestive tracts through the cribiform plate—but all starting from the brain.

In his book on "Ancient Medicine," where he protests against the entertainment of hypotheses as to etiology, Hippocrates describes the symptoms of a coryza. "This discharge is much more acrid than that which is usually found in and runs from the nostrils

Coryza.

\* "The Flesh," No. 16.

† The Glands 10.

daily; and it occasions swellings of the nose and it inflames, being of a hot and extremely ardent nature, as you many know if you apply your hand to the place; and if the disease remains long, the part becomes ulcerated, although destitute of flesh, and hard, and the heat in the nose ceases, not when the defluxion takes place, and the inflammation is present, but when the running becomes thicker and less acrid and more mixed with the former secretion; then it is that the heat ceases." One of the Aphorisms (II. 40) reminds us that catarrhs and coryzas are not severe in old people. It is clear from a passage in the "Airs, Waters and Places" that Hippocrates believed that not only do stomach catarrhs have their origin in the head, but that nasal catarrh produces gastric symptoms. "Their bellies are subject to frequent disorders, owing to the phlegm running down from the head." Another modern idea we are reminded of in the relation of a case\* of habitual catarrh which was cured in three days by coitus.

Cyanche, which English translators usually render as quinzy, is a term Hippocrates applied to nearly all the acute inflammations of the throat. Littré (V. p. 579) discusses the question as to whether Hippocrates was familiar with diphtheria. Croup, Littré calls it. It is doubtful whether the cases are sufficiently differentiated in the Hippocratic writings to make them intelligible to modern readers. Even in the time of Littré's edition (1846) they would seem more intelligible than in these bacteriological days. They were of a very severe type, apparently, whatever the nature of them. We may conjecture that the peculiar and striking features of Ludwig's Angina or erysipelatous pharyngitis and laryngitis arrested Hippocrates' attention and caused him to record the case† of "the woman affected with quinzy who lodged in the house of Ariston." Profound constitutional symptoms, severe external swellings, and evidently internal stenosis causing dyspnea and the return of fluids by the nose rapidly brought the case to a fatal termination. The etiology of cynanche was supposed by Hippocrates to be the coagulation of the blood in the vessels of the neck. One cannot imagine what sort of an angina could be the cause of opisthotonos‡ lasting forty days and getting well. One has only to refer to "Diseases II," 26, 27, 28, 29, 30, 31, 32, to perceive how severe was the type of throat inflammation with which the Hippocratic writers were familiar and yet how im-

Acute Throat  
Inflam-  
mations.

\* Epidemics: V. 72, and VII. 69.

† Epidemics, III-VII.

‡ Internal Affections, 53.

possible it is from the description to more than guess at the class we would now put them in; as, for instance, No. 26 seems to have been diphtheria, while accounts of the others indicate, some of them a milder type of disease, and some ending fatally, but apparently not diphtheria. In the "Coan Prognostics" is a paragraph (II 14) which deals entirely with the prognostics of acute throat inflammations, but it is of little modern interest. In the "Aphorisms" (IV 34, 35) Hippocrates declares that "if a person laboring under a fever, without any swelling of the fauces, be seized with a sense of suffocation suddenly, it is a mortal symptom." Moreover, "if, in a person affected with a fever, the neck become suddenly distorted and he cannot swallow, except with great difficulty, although no swelling be present, it is a mortal symptom." Antitoxin, tracheotomy and intubation have of late years somewhat impaired the force of this prognosis, but we still recognize the gravity of the condition.

Intubation.

Since the following passage contains an indication that the idea at least of intubation existed in Hippocratic times, and because also it is a striking bit of objective description, I will translate it as literally as possible from Kühn's text (Vol. II, p. 300):

"*Cyanche*.—From cyanche, so-called, a man chokes, and it seems to be especially in the pharynx, and he is unable to swallow his spittle or anything else, and his eyes are affected and start forth as in those strangling, and he stares with them straight ahead, and he is not able to turn them, and he hiccups and starts suddenly up, and the countenance and the pharynx are burning, and even the neck. To those looking on there seems nothing the matter. He sees and hears dully, and from the dyspnea he knows not what he says, nor hears, nor does, but lies there with open mouth drooling and acting thus. He dies on the fifth or the seventh or the ninth day.

"*Para-Cynanche*.—When some of these symptoms are absent, it appears the disease is not so severe and they call it para-cynanche. It is necessary to bleed, especially from the vein beneath the nipple of the breast, for this naturally follows from the hot breath, *pneuma*,\* of the lung, and it is necessary to purge by drugs or move the bowels by enemata, and to *pass tubes into the pharynx* along the jaws, so that the breath may be drawn into the lungs, and to make them as quickly as possible to spit and thin the lungs (clear them out?) and to fumigate with Sicilian hyssop, and with sulphur, and with bitumen, and to breathe these in through the tubes and through the nostrils so that the phlegm may be cleared out, and the pharynx.

\* For accounts of the pneumatic dogma and the pneumatists see any of the histories of ancient medicine.

and the tongue may be cleaned in those having phlegm, and the veins under the tongue should be cut; and blood should be drawn from the elbows if the strength is sufficient. Abstinence from wine should be enjoined and thin barley water should be taken. After the disease has subsided and the appetite returns, purging with fresh elaterium should be employed so that he may not fall into another illness." The appearance of an external rash in all these cases of severe, possibly scarlatinal and diphtheritic pharyngitis and laryngitis, was thought by Hippocrates and Galen, and reasserted by Avicenna, to be a good sign.

In "Diseases II," 30 and 31, he recommends hot fomentations for what is apparently peritonsillitis, and scarification of the tonsils, but this latter not with sufficient clearness to make us sure of the recommendation. He also speaks of treating external fistulæ, resulting from this affection, with the cautery. Evidently we have here a confusion of diseases according to modern classification.

The nature of the tonsils is explained (Glands 7) as round bodies placed on each side of the throat to absorb the secretions from the head and send them back there again, and to do likewise for the vapors. From acute and chronic inflammations they may become greatly swollen. For enlarged tonsils he advised evulsion with the fingers. Although we find in Hippocrates no mention of tonsillotomy, it is evident, from what is thought to be a genuine book of Hippocrates, viz: (The Prognostics I, No. 23) that he was familiar with uvulotomy. In a book of less assured authenticity we read his description of the operation. "When the uvula alone is inflamed seize it with the finger and press it up against the palate and cut off the end."\*

Uvulotomy  
and Evulsion  
of the Ton-  
sils.

As has been intimated the Greek physician had every opportunity of familiarizing himself with fractures of the nose. The Hippocratic writers devote much attention to it. In "Mochlicus" 2, Articulations 35, 36, 37, 38, 39, we find minute and practical directions for its treatment. Indeed, comparatively little advance has ever been made over their methods. Great stress is laid upon the necessity of replacement within the first twenty-four or thirty-six hours after the injury. Satisfactory adaptation of the parts must be attained notwithstanding the patient's suffering, if a good result is to be reached. Hippocrates complains bitterly that the patient strongly desires the latter without being willing to submit to the former. For lifting the fragments of bone into place he preferred the fingers, making use of those of some boy or women assistant, if

Fractures of  
the Nose.

\* "De Morbis" II, 29 and 49.



possible, because of their small size and their softness. Internal splints from "Carthaginian leather" or other suitable substances were used. He condemns the use of sponges for the purpose because they soon become foul with the discharges. He relates how in one case he made use of a piece of the lung of a sheep, probably as a temporary expedient. Sacrificial altars to the gods were always near the fields where the games were held in which many of these accidents occurred, and we may imagine the resourceful surgeon quickly cutting a piece of the soft elastic tissues from the open chest of the slaughtered victim and inserting it into the nostril of some vanquished athlete. While perhaps it is not so curious, a more valuable suggestion is contained in his description of the method of treating lateral displacements of the nose, of course when recent. An internal splint was inserted as usual and then a long leather thong was glued at one end to the point of the nose which was pulled beyond the median line to the opposite side, and the thong wound around the head and fastened by gluing to the temples or in some other convenient fashion. This could then be pulled more taut or loosened as occasion required.



From "Galen Opera Omnia," Basel, 1561, Vol. 6, P. 593.

Hippocrates\* indulges in some satirical and still instructive remarks concerning bandages for a fractured nose.

"Those who put great store by a senseless dexterity rejoice to meet with a fracture of the nose in order to apply a bandage. For a day or two the physician takes great pride in himself, and the patient rejoices; but the latter soon tires of wearing the bandage, which is annoying; as for the doctor, it is enough for him to have shown that he understands how to put various bandages on the nose. Such a bandage does, however, quite the contrary to what is desired; on the one hand, in those in whom the nose had been sunken, it becomes markedly more sunken if pressure is exerted over it; on

\* "Articulations," 35.



the other hand, in those in whom the nose has been dislocated to the right or to the left, either in the cartilaginous, or in the upper part, these, evidently, far from deriving any advantage from a bandage placed on it, suffer harm from it." We look in vain for any reference to operation for straightening a chronic deviation of the septum. It is a little surprising that with the experience derived from the treatment of recent fractures and dislocations of the nose, they should have failed to remedy the chronic lesion which must have been frequent enough. He insists that external wounds or comminution of the fracture are not contra-indications to his plan of treatment. He must have witnessed the results of tremendous blows, probably with the cruel cestus, the iron shod glove of the boxer, for he speaks of the sinking in of the bridge of the nose when there is also exfoliation of the bone of the hard palate. Evidently in these dangerous encounters fracture at the base of the skull was an occasional result. At least he was familiar with its characteristic symptom, for he says: "A contusion of the head without an external wound, either by fall, fracture or compression, produces in some cases the flow of acrid humors which run from the head into the throat." Possibly, however he may here refer to suppuration as a result, of intranasal fracture.\*

We have just seen that Hippocrates was familiar with depression of the nasal arch as the result of injury. That he was familiar with it as the result of disease would appear from† the relations of the cases of two‡ children who from ulceration lost their teeth and pieces of the bone of the palate. This caused a sinking of the nose. They also had a bloody muco-purulent discharge. This description sounds very much like that of syphilis, either congenital or tertiary. This is thought by the majority of writers to have appeared first in Europe two thousand years later, brought from America by Columbus' sailors. This sinking of the nose is again referred to in another place.§. It is to be gathered from Galen's commentary|| that he also was familiar with a sinking in of the bridge of the nose due

Syphilis (?)

\* These excerpts from fractures of the nose I have taken from Adam's translation of the "Genuine Works of Hippocrates."

† Epidemics, IV, 19.

‡ This is the reading of Littré's translation, and to my mind that of Kühn's text, but the latter's translation refers to but one child.

§ Epidemics, VI, 3.

|| Edit. Kühn: Vol. XVII A, p. 823.

to a loss of substance in the structures beneath. Daremberg\* has suggested that syphilis is the disease referred to by Hesiod (Fragm. 27, 28) who betrays a knowledge of some skin diseases in aphrodisiac women. After a perusal of the text alluded to, it seems to me very doubtful if this was the Corona Veneris as Daremberg surmises, though crusts and blotches were found in the scalps of these women. The passages here cited from the Hippocratic writings and from Galen seem much better evidence of it. We are unfamiliar to-day with any other disease of the palate and gums of a chronic nature which is accompanied by exfoliation of bone and the sinking in of the nasal arch. The nasal arch will not sink from the loss of the palate bone, except the nasal bones themselves are affected at their junction with the bony septum. Of course it may possibly have been some severe case of scurvy or phosphorous poisoning, but producing such results as these it seems very unlikely.

Nasal Polypi. Probably there is nothing in the Hippocratic books so familiar to the modern rhinologist as Hippocrates' sponge method of removing nasal polypi.† Indeed this was a method practiced by Voltolini and mentioned in his text book.‡ Until the comparatively recent invention of the steel wire snare, it compared favorably with other methods of ablation. An interesting paper on the "Rhinology of Hippocrates," by Baldwin,§ is largely taken up with a discussion of the various methods recommended by Hippocrates for the removal of nasal polypi, and the accompanying illustrations elucidate the procedures very much. There were several methods. The sponge method was used for those soft pendent polypi which move out and in the nostril on expiration and inspiration. It consisted of tying the ends of three or four strings to a sponge cut to the proper size and shape. The other ends knotted together were fastened to the eye of a soft slender tin or leaden probe which was pushed through the nose into the pharynx. The ends of the strings thus secured were passed over the end of a forked probe held in the pharynx. By traction across this, the sponge was dragged into the pharynx, if successful, bringing the polyp with it. In another method for harder growths, perhaps our fibrous hypertrophies, the principle of the snare was em-

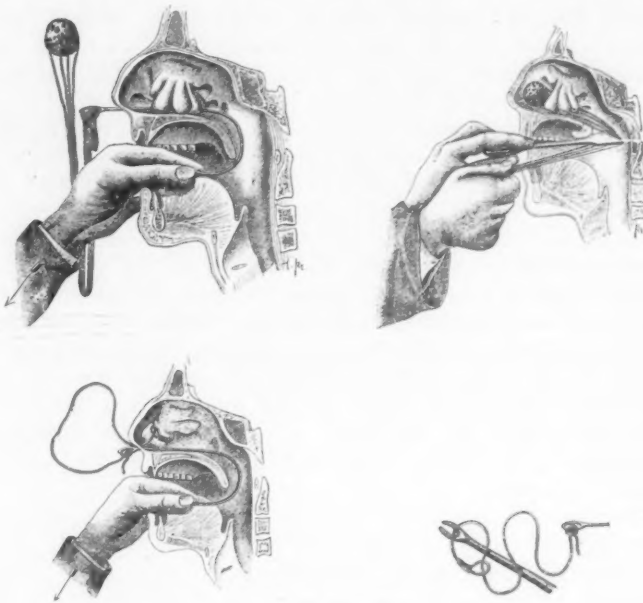
\* *Etat de la Médecine entre Homère et Hippocrate.*

† *Diseases II*: This book, from which I have quoted so freely, is said to have been written by Draco and Thessalus, sons of Hippocrates.

‡ "Die Krankheiten der Nase," 1890.

§ "Zeitschrift für Ohrenheilkunde," Bd. XXVIII, Hft. 2.

ployed. The loop of a sinew was adjusted around the polyp, and the end having been carried to the pharynx and traction made as before, evulsion was attained. For still harder growths which Baldwin conjectured may have been bony cysts, he employed cauterization with a hot iron through a hollow tube used as a speculum. I do not see any reason for imagining this procedure was for this rare form of intranasal growth. It may easily have been many other



From Baldwin.

pathological conditions, more likely to come frequently under the observation of the physician, such as cartilaginous spurs and hypertrophies. He speaks of a fleshy growth in the nostrils which he calls cancer, to be treated by the cautery, but as he says nothing about the strikingly fatal symptoms which ensue from any form of local treatment of malignant growth of the nose, it is doubtful if his term is equivalent to the present acceptance of it. He doubtless

had encountered rhinoliths, for he speaks of something in the nose which, when you touch it with a probe, sounds like a stone. For this he recommended an external incision. After all these radical operations he advised the application of copperas powder and the insertion of tents in the nostrils smeared with oil and honey, no doubt to prevent synechiæ and stenosis. I think that all rhinologists will agree that these procedures for the time were not bad intranasal surgery.

From the book on "Affections" we learn that all diseases come from the phlegm and the bile. The Hindu idea was that all bodily diseases come from Wind, Bile and Phlegm. Indeed, there are many resemblances in this book as well as the one I have just quoted from which remind us of the Susruta. Polypi were supposed to be caused by the phlegm. It was derangement of these elements which produced diseases according to the Hippocratic authors. These books are not supposed to have been written by Hippocrates himself. Indeed, he explicitly discourages all theorizing as to etiology in his book on Ancient Medicine.

#### Epistaxis.

In various places Hippocrates has much to say of nasal hemorrhage as a symptom in many diseases, and in *Airs, Waters and Places* remarks that persons under thirty years of age are liable to severe bleeding at the nose in summer. In the *Affections* (No. 27) recommendations for stopping epistaxis include cold externally, a tent in the nostril, styptics and purging. One of the *Aphorisms* shows that he was familiar with vicarious menstruation as a cause of the nose bleed. "In a woman when there is a stoppage of the menses, a discharge of blood from the nose is good." (V. 33).

#### Sinusitis (?)

Various other references to diseases of the upper air passages may be found in the *Aphorisms*, and among them one (VI. 10) referring evidently to the symptoms of aural or nasal sinus disease:

"In a person having a painful spot in the head, with intense cephalalgia, pus or water, running from the nose or by the mouth or at the ears, removes the disease." It was supposed, as we have seen, that the origin of this discharge was the brain.\*

The last of the *Aphorisms* applies with especial force to the nose and throat, though it is meant of course to be of general application. (VII, 87). "Those diseases which medicines do not cure, the knife cures; those which the knife cannot cure, fire cures; those which fire cannot cure are to be reckoned wholly in-

\* Vid: Galen's Commentary. Edit. Kühn: XVIII. A. 20.

curable." A similar apothegm is found in the Hindu *Susruta*.

In the clinical notes which go under the title of *Coan Prognostics* we find an intimation that *phthisis pulmonalis* is a result at times of nasal catarrh, cases thus arising being considered most dangerous of all. (II, xxi, 430). This is a superstition which still lingers in medicine and is continually reappearing in some form or other.

There is a passage in this book which is of considerable value in the differential diagnosis of hemoptysis especially among a people who drink directly from brooks and springs and pools in the primitive fashion. (II, 17). "In those in whom the throat becomes filled with blood several times, day and night, without preceding pains in the head or cough or vomiting or fever or pain in the chest and back, look in the nose and throat. You will find there either a wound or a leech."

It must be borne in mind that there are many other passages in the Hippocratic books of great interest to the laryngologist, but I have already cited enough to convince the reader that a compilation of them all would make a brochure on the diseases of the nose and throat which no modern student of laryngology could afford to despise.

#### FROM HIPPOCRATES TO CELSUS.

There now followed a period of more than four hundred years before a medical work was given to the world which was destined to survive the ravages of time, the vicissitudes of empire and the vandalism of man, and to transmit to us at first hand the state of medical knowledge in the Roman world at the zenith of its power and vigor. From Hippocrates to Celsus is a long stretch in the history of the world. It is crowded full of events of absorbing interest and importance to our present civilization. It witnessed the rise and glory of Grecian civilization and its absorption into the world-wide domain of imperial Rome. In the Hippocratic era tiny Greece was battling with that huge menacing bulk of Oriental despotism, the enervating and soul-enslaving empire of the Persian kings. In that death struggle for our civilization she rolled back from Marathon (490 B. C.) Platea (479 B. C.) and Salamis (480 B. C.) that tide of stifling slavery and voluptuous sensuality which was threatening to engulf the garden she had planted and to extinguish the torch she had lighted at fires long since quenched by this very Orientalism. From the rugged mountains and wind-swept isles of Greece this eastern terror recoiled to the plains of Asia.

Ninety years later, ten thousand Greeks, a mere handful among millions, marched fifteen hundred miles into the heart of the Persian empire and after putting to flight an army of a million men turned around and cut their way out again. When next they plunged into Asia, seventy years later, it was with the youthful Alexander at their head. They dismembered the lifeless body of Orientalism which had been so long a menace to them, and for a thousand years it lay prostrate before it again threatened the civilization of Europe. When it was again about to inundate the budding civilization of the west, Don John, of Austria, at Lepanto (1571) and John Sobieski, with his Poles, at Vienna (1583) again stemmed the rising tide and forced it back. In the century which now opens before us, the drama of two civilizations played on the stage of the world for twenty-five hundred years by the immortal gods is, let us hope, drawing to a close. Although the ancient Greeks shattered the cohesiveness of the mighty Persian empire they could not graft on the barren limbs of Orientalism the buds of their own fructifying activity. In vain did the generals of Alexander and their successors call around them the most brilliant minds of the age. The libraries of Pergamos and Alexandria, with their hundreds of thousands of volumes, and the great schools which were founded with lavish expenditure of Oriental treasure wrung from slavish races by their Grecian rulers, advanced enormously the state of medical knowledge, but these institutions with the records of their own and of past scientific labor, planted in a land powerless to defend them, perished utterly at the hands of a succession of ruthless Roman and Saracen conquerors. The universal prevalence of the spirit which creates such monuments is the only bulwark which can defend them.\* As Gibbon suggests† the loss to literature pure and simple was probably not great, but to medicine and science it was irreparable, for only in such a collection of books can we hope to find those of ancient date which appeal to the understanding of man rather than to his emotions. It is the historian of science alone who fully realizes that the destruction of the great libraries accomplished greater wrong to humanity a thousand times over than any event history records. The great poets, historians, dramatists have many of them been preserved to us, but not so the records of those parts of civilization which administer directly to man's material comfort and health, and thus indirectly to his happiness.‡

The Schools of  
Pergamos  
and Alex-  
andria.

\* "Il n'y a pas de système qui puisse durer autrement que par des institutions." (Guizot.)

† "The History of the Decline and Fall of the Roman Empire," Vol. V, P. 228.

‡ The School and the Library of Alexandria was founded 320 B. C. by the Ptolemies and was finally destroyed 640 A. D.

We are reduced, therefore, again to the necessity of scanning secular literature and of extracting second hand from the later works of Galen, Pliny, Oribasius, Rufus, Aetius the scanty records of the labors of more original workers than they. . We have every reason to believe that enormous strides were made in anatomy by the schools of Alexandria where dissection of the human body was first certainly regularly pursued. It is even said that the school of Alexandria indulged in the practice of human vivisection.† This is related with a shudder by the historians who delight to report the innumerable tortures inflicted upon innocent men by their fellow-men from motives of ambition, pride, lust and revenge. The statement is received with horror by a cultured and refined public, who peruse with pleasure and avidity the other pages of history reeking with gore and replete with accounts of human misery. Erasistratus, Herophilus and their confrères, if they did it at all, seemed to have pursued their investigations on gentle murderers and other virtuous criminals, out of the reprehensible motives of enlarging the boundaries of human knowledge and increasing the powers of man's benevolence and humanity. This practice attributed to the Alexandrian school has been denied and certainly not satisfactorily proven. Dissection of the dead human body as well as of animals, however, did at this period, create the science of anatomy. The records of this fruitful activity have, as has been said, utterly perished, but we may see from the works of Hippocrates and of Aristotle how deficient was the knowledge of human anatomy before, and from the works of Galen how enormously increased it was after the foundation of the libraries and schools of Pergamos and Alexandria.

Singular to say, Aristotle (384-322 B. C.), who dominated the medicine and the philosophy of the dark ages, and who was said to have long practiced physic before he devoted himself to pure science, has left behind him very little pertaining directly to medicine, notwithstanding his profuse contributions to nearly all other branches of knowledge. Nevertheless we may find in his works a few indications of his conception of the anatomy of the upper air passages. He placed at the top of the nostrils a kind of a lid which rises at the time of inspiration to let in the odors. "There is no passage from the ear to the brain, but there is to the roof of the mouth." He described the larynx as the organ through which the voice and the breath pass, and as situated in the front part of the neck. He says the trachea is cartilaginous and surrounded by smooth rings and

† Celsus: "Lib. I., Proenmium."

contains but little blood. "It lies at the upper part toward the mouth opposite the passage from the nostril to the mouth, wherefore if any liquid is drawn into it in drinking it passes out of the mouth through the nostrils." "Between the passages is the epiglottis, which can be folded over the passage which extends from the trachea to the mouth; by the epiglottis the passage of the tongue is closed; at the other extremity the trachea reaches to the middle of the lungs." "The heart is connected with the trachea by fatty cartilaginous muscular bands." The uvula is described as a very vascular organ. He speaks of the epiglottis as part of the tongue. He recognized\* that the voice was produced within the trachea by the impact of the air, inspired by the soul which he thought resided in the heart and lungs, against it. "It is the voice and the larynx which emits vowels; it is the tongue and the lips which form the consonants, or the aphonic letters."† As we have seen (l. c.), Aristotle was free from the error of supposing that drink passes into the lungs.

Praxagoras was the last of the *Æsclepiadæ* of whom we have record. We read in "Cœlius Aurelianus‡ that he recommended cutting off the end of the uvula or scarifying it deeply when it was greatly inflamed. He transmitted the medicine of Hippocrates to his pupil Herophilus (300 B. C.), the great anatomist of the Alexandrian school. He is said to have instructed the latter in the knowledge of the pulse, which he afterwards so greatly developed. Pliny refers to Herophilus as the "vatis medicinæ,"§ the oracle of medicine. He, in all probability, contributed greatly to the anatomical knowledge of the upper air passages, but only the merest hints of it remain to us. Thus we learn from Rufus Ephesius|| that he called the hyoid bone the parastate because it was situated near the tonsils. According to Soranus, quoted by Oribasius (XXIV, C 31), Herophilus likened the cervix uteri gravidi to the larynx. Plutarch, from whom we have so often to quote, after mentioning¶ some incomprehensible theories of Empedocles and of Asclepiades, says that Herophilus attributes

\* De Anima: II, VIII *vid.* Translation by St. Hilaire "Traité de l'Ame," p. 225.

† "Hist. of Animals," IV, Chap. IX.

‡ "De Morb. Acut.," III, C. IV.

§ "Hist. Nat.," II 37, 88 Sec. 219.

|| "Du Nom des Parties du Corps" (Edit. Daremberg), p. 155.

¶ "De Placit. Philosoph.," XXII.



a moving faculty to the nerves, arteries and muscles, but believes that the lungs are affected only with a natural desire of enlarging and contracting themselves. From the citation made by Marx in his brochure on Herophilus (P. 34), I would infer that the latter thought that the lung drove the air into the pleural cavity, and then, receiving it back again, expelled it externally. Erasistratus and Herophilus both knew that the arteries contained blood and that the pulse was connected with the heart, and yet apparently the circulation of the blood remained unknown for eighteen centuries. We learn from Celsus (Lib. IV, Cap. 11) that the former used ligation of the extremities as a remedy for hemoptysis. Eudemis (279 B. C.), we learn from Rufus (1 c.), compared the styloid process to the spur of a cock, but gave it no name. This is a small gleaming from a period of several hundred years which marked the beginnings of the study of anatomy, but as to the upper air passages we look in vain for more, at least until the time of Asclepiades.

#### ROMAN MEDICINE.

Pliny is often quoted as saying that Rome for 600 years was without physicians but not without physic. Cato, the Censor, (b. 232 B. C.) we know had a very poor opinion of the doctors and in fact of learning in general. He was instrumental in driving Carneades and the other Greek savants from Rome in his day, but it cannot be conjectured that this arose from any skeptical turn of mind on his part, for in his book on Agriculture, amidst many receipts, amulets, charms and invocations we find him prescribing his favorite, almost his sole, drug for nasal polypus: "If there is a polypus in the nose rub together some dry wild cabbage leaves in the hand and place it at the nose and draw up the breath as much as you can. In three days the polypus will fall away. Nevertheless, for some days do the same; so that you may render the roots of the polypi entirely healthy."

It was not until the year 219 B. C. that Greek medicine found its way to Rome. Arcagathus was the first Greek physician, who, about that time, came to Rome.\* He was very unsuccessful. We may read in Plutarch's Life of Cato, the Censor, how the Romans treated Carneades, the Athenian philosopher and Ambassador, in order to appreciate the prejudice with which

\* "Cassius Henina, among the most ancient authors, is authority for the report that the first of physicians to come to Rome from the Peloponessus was Archagathus, the son of Lysania, in the year of the City, 535."—(Plinii Naturalis Hist. Lib. XXIX Cap. 1-6.)

Cicero's Anatomy and Physiology.

the sturdy but rude old patricians of ancient Rome viewed the introduction of Greek civilization. It has always been noted in the history of the world that the first advances which have tended to ameliorate the asperities, to increase the amenities, and to introduce a wider knowledge among a rude and vigorous people have met with the suspicion and contempt of the conservative majority, who look upon the innovations as the first steps towards effeminacy and degeneration. It was not until the time of Asclepiades (100 B. C.) the friend of Cicero (106-43 B. C.) "is quo nos medico amicoque usi sumus, tum eloquentia vincebat ceteros medicos"\* that the art of medicine really began to flourish in Rome, and we soon find Cicero describing the wonders wrought by the immortal gods,† not the least of which are the marvels of the human anatomy. "It will be more easily appreciated what has been done for man by the immortal gods, if the whole fabric of man is examined, and the perfection and method of human structure is brought to our comprehension. The life of living creatures is maintained by three things, by food, by drink and by the breath (spiritus) and for making use of these the mouth is especially adapted because it is reinforced by the air from the adjoined nostrils. The food is masticated by the teeth arranged in the mouth, and by them divided and softened. The sharp front teeth divide the food when bitten, and the back ones, which are called the true teeth, prepare it and this preparation seems to be aided even by the tongue. The esophagus, adherent to the tongue at its root, receives from it that which has been received by the mouth. This, touching the tonsils on each side, is continuous with the end of the palate and this it is which receives the food after it has been pushed along by the movements of the tongue, and passes it downwards. Those parts which are lower down than that which swallows (the food) are dilated, while those parts above are contracted. But since the "Aspera Arteria," for thus it is called by physicians, has an opening joined to the roots of the tongue, a little above where the esophagus is joined to the tongue, and since this reaches to the lungs and receives the air (or soul-anima) that being received from the breath (spiritus) and this being inspired and again returned, it is protected, as it were, by something like a lid, which is provided for the reason that if by any chance food should fall in it, the breath would be stopped. Since by its nature

\* "De Oratore," I Cap. 14.

† "De Natura Deorum," II, 54.

the belly, attached below to the esophagus, is a receptacle for food and drink, and the lungs and heart form an exit for the breath, in the belly many things are admirably arranged, which it is about agreed, are (controlled) from the nerves (*nervis*). It (*i. e.*, the gastro-intestinal tract) is, however, multiple and tortuous, and it encloses and holds that which it receives whether it is dry or wet, so that it may be altered and digested; it is by turns contracted and relaxed, and everything which it receives it compresses and mixes, so that all things, prepared and digested by the heat, of which it has much, and by the attrition of the food and especially by the breath (*Spiritus*), are distributed to the rest of the body. In the lungs, however, there is a certain looseness of texture and a softness, similar to the sponges, most carefully adapted for drawing in the breath. They in turn contract on expiration and dilate on inspiration, so that the nourishment by which breathing creatures are principally supported may be frequently taken in."

In another passage (*Ibid*, Lib. II, Cap. 57) Cicero intimates the existence of further knowledge of nasal physiology in his remark: "Likewise the nares, which are always open on account of necessary functions have narrower entrances lest anything which might be injurious should enter them, and they always are supplied with a moisture not useless for arresting dust and many other things." Of course we can not suppose that Cicero included bacteria in his "*multaque alia depellenda*."

After all, these passages from one of the greatest masters of human speech who has ever lived, and a man profoundly imbued with all the knowledge of his day, are perhaps not a bad index of the state of knowledge of the anatomy and physiology of the air and food tracts. It is a great advance over anything we can find in Hippocrates and Aristotle.

As to Asclepiades, that eloquent rhetorician of Bithynia, the friend of Cicero and Crassus, the great advocate of diet, exercise and massage, and enemy of bitter doses and radical treatment generally, we have only a few fragments, collected by Gumpert. He made a great stir in his day; he declared that so perfect was his regimen, disease had no terrors for him; he was never sick and only died because he fell from a ladder and broke his neck in extreme old age.\* Synanche† he said was "a flow of the humours or a wetness of the fauces, or rather of the very top of them, coming down from the head." Besides the purging and bleeding he scari-

Asclepiades.

\* Pliny: *Hist. Natur.*, VII. 37.

† Cœlius Aurel. de *Morb. Acut.* III. 1. c.

fied the tonsils and the fauces around them. Moreover he approved of the practice of incision of the trachea as recommended by the ancients, which they called laryngotomy,\* to relieve the respiration. Themison, the founder of the school of Methodists and a follower and disciple of Asclepiades also approved of this surgical operation. Celsus (Lib. IV, Cap. IX), quotes him approvingly and recommends his prescription of swallowing strong vinegar in ulceration of the fauces, and says that he condemned the practice of Erasistratus ligating the extremities for hemoptysis. With this condemnation Celsus does not agree. So far as the throat is concerned, therefore his practice to-day would not be called very mild or conservative.

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\* Caelius Aurelianus (de Acut. Morb.) Lib. III, Cap. IV, Edit. Amman P. 193—Asclepiades—"At si major (inquit) passio fuerit, dividende sunt fauces, hoc est tonsillæ et partes supra uvam constitutæ; etenim summa est in his æqualis sive par incisura, quam appellavit *homatomia*. Dehinc a veteribus probatum approbat arteriæ divisuram, ob respirationem faciendam, quam laryngotomiam vocant, varie ac multipliciter peccans."

This is the first mention we find of this operation unless it is referred to in the Talmud. It is a good illustration of how much must have been lost from the old records. Cælius expresses the belief that the account of the ancients doing it was not true but an invention of Asclepiades.

(To be continued.)

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## SUBARACHNOID INJECTION OF COCAIN AS A GENERAL ANESTHETIC FOR OPERATIONS UPON THE HEAD.\*

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As ophthalmology was the first field in which the practical use of cocain as an anesthetic was demonstrated and since that demonstration by Keller in 1884 has been in extensive use the world over as a local anesthetic in diseases of the eye, ear, nose and throat, those following this line are probably more familiar with its anesthetic properties than those in any other line of practice, hence its introduction into general surgery as a general analgesic should be of particular interest to us. Although the local anesthetic effect of cocain is amply sufficient for most of the operations we are called upon to perform, there yet remains a large proportion where a general anesthetic is necessary. Both chloroform and ether as general anesthetics have a large number of deaths resulting from their administration and it is a peculiar fact that most of the deaths have resulted when the operations were very simple. Complete unconsciousness is often one of great concern to the patient, and the surgeon is not always free from anxiety and worry. Added to these questions is the fact that there are many contra-indications to the administration of both ether and chloroform as a general anesthetic, where the risk is very great, as in kidney, lung and heart complications and where the vitality is very low as in the aged, hence the introduction of a general anesthetic having apparently no contra-indications of age, sex or disease is something of the greatest importance to us. Dr. J. L. Corning, of New York, I believe, was the first to demonstrate the subarachnoid injection of cocain in 1884, the same year that Koller discovered its local anesthetic effect upon the eye; but little was done with it, however, until Tuffier, of Paris, reported to the International Medical Congress of 1900, 130 cases in which he had been able to get profound analgesia and do all the capital operations on the lower extremities and below the diaphragm with the injection of 10 to 20 minims of a two per cent solution of cocain into the subarachnoid space; the space being reached by passing the needle between the third and fourth lumbar vertebra. Since that time the method has been tried by surgeons in nearly

\* Read before the annual meeting of the American Rhinological, Laryngological and Otological Society, New York, May 23, 1901.

every part of the world. Until very recently, however, it has been thought that the analgesia did not extend above the armpits. Dr. A. W. Morton, of San Francisco, I believe, was the first to prove that complete analgesia could be produced all over the body by the lumbar injection and as my clinic at the City and County Hospital, San Francisco, falls on the same days with Dr. Morton, and at the hour just preceding his, I have had an opportunity of observing the detail of most of the 270 operations he has made under spinal injection. His success in the excision of a tumor from the lower lip prompted me to make use of it in our field. I therefore lay before you my experience, and although small, if taken together with the successful use of the method in general surgery, may serve to point the way to its use in *suitable* cases in our special field.

*To Produce Analgesia of the Upper Extremities.*—To produce analgesia of the head simply requires that when the needle is introduced it be pointed upward and that the cocain solution be *forced* in *quickly*, as the rate of diffusion of the solution in the spinal fluid seems to be in the ratio to the rate of injection.

*Preparation of Patient.*—The site of injection is prepared in exactly the same way and at the same time as the field of operation.

*The Instruments Used and their Preparation.*—A glass syringe, which has the barrel graduated and the piston ground to fit and can be readily sterilized by boiling is the one used. The needle is of steel, three inches long, with an external diameter of 1.1 m.m.; an internal diameter of 8 m.m. Its end has a short bevel with the concave portion of the bevel made dull which prevents it from cutting a plug from the skin and thus obstructing the lumen of the needle; it is connected to the syringe by a joint and with each needle there is a wire stylet. When the needles are not in use it is well to put them in a saturated solution of carbonate of soda to prevent rusting.

*The Injection.*—The surface of the lumbar region having been prepared, the patient is placed in a reclining position on either side and the back bowed out or made convex so as to separate the spine of the vetebræ and cause pressure of the cerebro-spinal fluid; the fourth lumbar is on an imaginary line connecting the crests of the ilium and just above this between the third and fourth lumbar in the center line the needle is introduced. Before placing the needle, however, it is best to freeze the point with ethel-chloride and make a small puncture of the skin with the point of a sharp scalpel. The needle is introduced with the point directed slightly upward and by making firm pressure it is driven in carefully; one feels the dimin-

shed resistance as the point of the needle enters the subarachnoid space, which is about two and one-half inches deep, variations depending upon the thickness of the muscles. The only positive evidence, however, of the space having been reached is the appearance of the cerebro-spinal fluid in the lumen of the needle. No injection should be made until one sees the spinal fluid. It is possible that the needle may become obstructed by tissue, which can be removed by passing the stylet, or having the patient cough, or it may be necessary to withdraw the needle, see that it is not obstructed, and introduce it again. After a drop of cerebro-spinal fluid passes, the aseptic finger is placed over the needle and the syringe previously filled with the cocain solution is adjusted to the needle; the patient who has been in a bent position is now relaxed and straightened out to *relieve* the pressure of the cerebro-spinal fluid, then the solution to be injected is forced in *rapidly* the needle removed quickly and the needle puncture closed with sterile cotton collodion. For operations upon the head a maximum dose must be used, that is, 18 to 25 minims of a 2 per cent solution of cocain, and as the specific gravity of the cocain solution is less than that of the spinal fluid, the body is slightly elevated in order to favor its diffusion upwards. The analgesia is complete in the lower extremities and trunk in from 3 to 8 minutes, but it requires from 15 to 30 minutes for profound analgesia to reach the head.

*Preparation of the Cocain.*—This is the most important part of the technique. We are all familiar with the unstable character of cocain solutions, and with the great difficulty of sterilizing the solution without injuring its anesthetic properties. Dr. Wm. C. Riley, of San Francisco, has overcome all of these drawbacks by sterilizing the crystals of cocain hydrochlorate at a temperature of 300 F.; thus sterilized in crystal form no change takes place in the anesthetic qualities of the drug. As the toxic and disagreeable symptoms in the past attendant upon cocain injection have been found to be due to some of the by-products of cocain or to its decomposition product, the absolute purity, sterility and stability of the cocain solution is very essential, hence the market product at present must be carefully tested for the quantity of pure cocain it contains, and the by-product, especially isotropic cocain, which depresses the heart, eliminated. Dr. Riley's method is to dry-heat the cocain crystals at 100 C., pulverize and place in a rubber-stoppered jar; then 30 minium vials are fired over a flame to kill the hay bacilli, and into each vial is weighed  $\frac{6}{10}$  grain of the above-prepared cocain; they are then heated to 150 C. for 20 minutes; each vial is stoppered with a wax-

dipped cork, and so kept indefinitely till required for use; when sterile water is added to fill the vial we have a 2 per cent solution, which is certain and uniform in its action. This vial containing the dry sterilized cocain is not opened until the time of use. It is rendered sterile on the outside by immersing the vial in a solution of bichloride of mercury 1 to 2,000. When ready to make the solution, the vial and cork are washed off with sterile water, the cork removed and sterile water at a temperature of 105 F. is added, which makes a two per cent solution; this is removed from the vial to the syringe at the time of use. Although from 5 to 15 minutes is sufficient for profound analgesic action upon the lower extremities, it requires from 18 to 30 minutes to get satisfactory analgesic action upon the head.

*The Usual Symptoms Following Injection.*—There is usually some nausea 4 or 5 minutes after injection—sometimes vomiting, but this all subsides in a few minutes. There is usually some perspiration and slight cramps in the extremities. The pulse is a little rapid at the beginning, but soon becomes about normal and remains so.

*The Unusual Symptoms Following Injection.*—Sometimes a sub-normal temperature, chills and marked depression occur after the injection, which is now generally attributed to spinal shock due to the loss of too much spinal fluid and the injected solution not being up to the proper temperature. My cases have been without disagreeable incident, but as an example of what can occur I will quote from Dr. Morton's last report, in which he says: "I have never seen the symptoms alarming except in the following case, where I removed considerable cerebro-spinal fluid for analysis:

"Mr. Wm. V., aged seventy-two, City and County Hospital, carcinoma on the upper and inner part of scapula removed. Thirty-five minims of cerebro-spinal fluid were removed, and I injected 30 minims of 1 per cent solution cocain; analgesia complete in 3 minutes; pulse before operation, 80; respiration, 20; about 10 minutes after injection, pulse very weak at wrists; respiration irregular; heavy perspiration; pupils dilated; bowels moved. Patient was placed in Trendelenberg's position; artificial respiration with abdominal massage and stimulation by strychnia, nitro-glycerine and whiskey within ten minutes, pulse and respiration very good; operation was finished without pain; patient suffered with headache and nausea for 12 hours; evening temperature that day, 102 F.; next morning, 100 F.; pulse, evening, 104; morning, 93; otherwise continued normal; later injected same dose of cocain, with only a few drops of cerebro-spinal fluid passing, and cauterized carcinoma without any unusual symptoms.



*Post Operative Condition of Patient.*—There is frequently some headache, which lasts from 12 to 24 hours. Sometimes it is very severe, but is always relieved by 5 grain doses of antikamnia combined with  $\frac{1}{2}$  grain of caffein, repeated in half an hour. There is sometimes a rise of temperature to 101 or 102 on the same day or the day following the operation, but it never lasts longer than two days. This temperature has been produced by injecting salt solution into the space, so it is inferred to be due to some disturbance of the heat center. There are sometimes involuntary passages on the table, so it is best to have cathartics used 48 hours before operation and not just the evening before, as is the rule in preparing for a general anesthetic.

*The Question of Surgical Shock.*—In none of my cases has there been surgical shock, even in the old lady, eighty years of age, for whom I enucleated an eye, and it is claimed by those doing capital operations that the patient suffers less from shock under spinal anesthesia and reacts much sooner and better.

*The Question of Mental Shock.*—As a great deal of our operative work is done under local anesthesia, with full consciousness of the patient and rarely produces mental shock, I do not think it enters seriously into the question now.

*The Advantages of Spinal Injection in our Field.*—A great advantage is secured in having the co-operation of the patient in many of the operations upon the ear, nose and throat, in that they can place themselves in more favorable positions and enable us to operate more rapidly and effectively; and after the slight nausea and vomiting immediately following the injection, we never have this to contend with in operations upon the throat, but, on the contrary, we have the assistance of the patient in clearing the field of mucous and blood and otherwise assisting us. Although I have not yet used the method in other operations upon the eye than that of enucleation, I can readily appreciate the tremendous advantage gained by having the intelligent co-operation of the patient when operating extensively upon the ocular muscles, as in advancements.

*Apparently no Contra-Indications.*—There being apparently no contra-indications of age, sex, or disease, it can always be used where either ether or chloroform is contra-indicated, as in kidney, heart and lung disease. It also can always be used where the patient objects to becoming unconscious, as in taking chloroform or ether, and thus a larger percentage of cases will be brought to operation early and proportionately better results secured.

*The Question of the Safety of the Injection.*—There have been up to this time about 3,000 cases reported and not one death which has occurred can be seriously attributed to the method; all this, too, when the technique of the method, the preparation of the cocain, etc., were uncertain. When the cocain is properly prepared, and the proper technique and instruments used, the method appears to be simple, safe and effective, and without any attendant dangers, although, of course, it is impossible to pass very definitely upon the value and safety of such an innovation until the technique is perfected and the results in several thousand cases reported.

*The Physiological Action of Cocain in the Subarachnoid Space.*—Just how the analgesic action is produced is not yet thoroughly understood; if normal salt solution is injected one gets every result except the analgesic action. Lewnadawsky has found that substances injected into the subarachnoid space enter the nerves, and structure of the cord directly without passing into the general circulation. He has demonstrated this by using ferro-cyanate of sodium and carmine. When the cocain solution is thrown into the subarachnoid space and diffuses through the fluid, it affects but one nerve sense, that of pain, which it abolishes. The senses of touch, heat, cold, motion and co-ordination remain intact. It would therefore seem to have a selective action only for the nerve filaments presiding over the sensation of pain. As the analgesic action takes place quickly, frequently within two or three minutes after injection, the cocain appears to have a purely local action upon the spinal and basal centers of these filaments, and, the cocain enters the nerve structures directly, as demonstrated by Lewandawsky's carmine injection, and without passing into the general circulation; hence we get none of the general affects produced by the absorption of cocain. It would appear that its analgesic action here was comparable to that secured upon the iris after the cocain has diffused through the aqueous humor and anesthetized the iris, without affecting its function. The roots of the spinal and basal nerves are bathed in the cerebro-spinal fluid which passes through the lymph channels and around the sheath which covers the nerves, and as the subarachnoid spaces communicate with the ventricles, through the foramina of Magendie, Key and Retzius, to get analgesic action upon the head is simply a matter of using a larger dose and giving sufficient time for the solution to diffuse through the cerebro-spinal fluid to the ventricles.

The operations upon the head done under spinal analgesia which I have to report comprise:

- 2 Simple Mastoid Operations.

- 1 Stacke Operation.
- 2 Frontal Sinus Operations.
- 1 Ossicectomy.
- 1 Eneucleation of the Eye.

Mrs. N.——, eighty years of age, operated upon at the California Eye and Ear Hospital. Diagnosis: Phthisis bulbi, from perforating wound. Operation: Eneucleation; 20 minims of a two per cent solution of cocain injected between the third and fourth lumbar vertebra. Analgesia complete to the neck and face in twelve minutes, but the eye was not entirely anesthetized for eighteen minutes. Pulse varied between 70 and 100°; respiration practically normal. The operation was perfectly painless. There was a slight amount of nausea but no vomiting. On the evening of the day of operation the temperature was 102°, and 101° on the day following. The headache began about four hours after the operation and became very severe; was somewhat relieved by an ice bag to the head and almost entirely relieved by one five-grain dose of antikamnia combined with one-half grain caffein. I learned later that the patient had had an attack of fever every week or so lasting two or three days for several months past, so I did not attribute this rise of temperature to the injection.

Mr. W.——, thirty years of age, operated upon at the California Eye and Ear Hospital. Diagnosis: Sub-acute mastoiditis. Simple mastoid operation: 20 minims of two per cent solution injected between the third and fourth lumbar vertebra. Analgesia complete to armpits in fifteen minutes, but it required thirty minutes in this case before the analgesia was sufficient to begin operating on the mastoid. I must say, however, that this patient was an exceedingly nervous one and very apprehensive, and the analgesia may have been complete earlier than thirty minutes. The pulse did not go beyond 100°; respiration remained practically normal. The operation occupied forty minutes; there was a slight amount of nausea and some vomiting eight minutes after injection which lasted four or five minutes. The patient felt well when the operation was finished; said he felt absolutely no pain, only the discomfort of traction by the retractors. Three hours after operation the patient complained bitterly of a very severe headache and backache. Somewhat relieved by the application of ice, but relieved entirely by the antikamnia-caffein powder.

Mr. R.——, forty-five years of age, operated upon at the California Eye and Ear Hospital. Diagnosis: Suppurative disease

of the frontal sinus. Operation: Curettement; 20 minims of a two per cent solution of cocain injected. Analgesia complete in twenty-two minutes. Pulse varied between normal and 110; respiration 20 to 24; a little nausea and slight vomiting. Operation occupied forty minutes with absolutely no pain. Two hours afterward a slight headache relieved at once by one dose of the anti-kamnia-caffein powder.

R. K., fifteen years of age, operated upon at the City and County Hospital. Diagnosis: Old otorrhea and suppurative mastoiditis. A Stacke operation made. Eighteen minims of a 2 per cent solution of cocain injected between the third and fourth lumbar vertebra. Analgesia complete in lower part of body in three minutes. Analgesia of the head complete in 18 minutes. Pulse varied between 118 and 144, respiration between 20 and 28. Operation occupied one hour, with absolutely no pain except when granulations were curetted from external canal and middle ear. As this patient was but fifteen years of age, and cried and complained a great deal when his head was being shaved preparatory for operation, I think he was more alarmed than hurt when the external canal and middle ear were curetted as stated. The recovery in this case was absolutely uneventful; no headache, no rise of temperature.

Mr. M., age forty-three, operated upon at the City and County Hospital. Diagnosis: Empyema of frontal sinus and ethmoid cells. Operation: Curettement. Twenty-three minims of a 2 per cent solution of cocain injected. Complete analgesia in 30 minutes; a little nausea and a little vomiting, which passed off in a few minutes. No pain from the operation except when the angles of the sinus were curetted, then he seemed to suffer a good deal of pain. The sinuses in this case, however, were very anomalous, having tremendous diverticulæ and the external angles following the supra-orbital ridges clear out to the external limit of the eye brows.

W. H. A., age thirty-five, operated upon at the City and County Hospital. Operation: Re-opening of a Stacke wound and curettement of the superior and anterior wall of the mastoid antrum. Twenty minims of a 2 per cent solution of cocain injected. Analgesia complete in 16 minutes. Pulse varied between 70 and 100, respiration between 18 and 26. There was a little nausea and vomiting. Ten minutes after the injection the patient's pulse became very weak and he felt very much depressed;  $\frac{1}{20}$  strychnia was given; he recovered readily in a few minutes. The operation

occupied 30 minutes and caused but little pain; none at all after the first 5 or 10 minutes.

R. K., age fifteen, operated upon at the City and County Hospital. Diagnosis: Old otitis, necrosis of the ossicles and granulations in middle ear. Operation: Ossiculectomy and curettement. Twenty minims 2 per cent solution of cocain injected. Slight nausea and vomiting; passed off in 10 minutes and felt well. Analgesia complete in 30 minutes. Patient sat on a chair beside the light so that I used the head mirror and operated with much comfort, having full co-operation of the patient. Operation required 25 minutes. There was no pain except when the ossicles were grasped with forceps. The pain was not severe, however, so the patient stood it very well. Both pulse and respiration remained practically normal. The patient felt very well when the operation was finished. No headache or other post-operative disturbance.

As I have already said, it will, of course, take thousands of cases and a perfected technique to determine the scope of the use of cocain as a general analgesic. Its safety and reliability have been pretty thoroughly demonstrated for operations upon every part of the body except the head, and I believe there are selected cases where it will serve us well in this field. There is certainly far less disturbance after its use than following the administration of general anesthetics. There is but little if any shock, and the patient is usually ready to take his meals regularly very shortly after the operation, which is a great factor in keeping up the strength and nutrition of the patient. Another thing which appeals to me strongly in its favor is the apparent innocuousness of the method and its absolute freedom from contra-indications, having been used successfully in the aged, and those suffering from extensive organic heart and kidney disease; not the least advantage to us is being able to secure the co-operation of our patient, which would be a distinct help in many instances.

135 Geary Street.

#### CALIFORNIA EYE AND EAR HOSPITAL.

Lumbar puncture cocain.....	.....
No .....	April.....1901.
.....	Age .....
Diagnosis .....	.....
Operation .....	.....
Nausea .....	.....
Emesis .....	.....
Pain .....	.....
Time of injection .....	.....
Amount injected.....	m. 2% sol.....
Analgesia.....	in.....minutes.
Pulse.....	resp.....
Before injection .....	.....
During operation.....	.....
Operation finished at .....	.....
Remarks.	

## A VARIATION IN THE TECHNIQUE OF SEPTUM OPERATIONS.\*

BY STEPHEN H. LUTZ, M.D., BROOKLYN, N. Y.

Assistant Surgeon Manhattan Eye and Ear Hospital, New York; Assistant Surgeon Brooklyn Eye and Ear Hospital.

There is no one operation that can be depended upon to correct every deviated septum. Each case has some feature individually its own. As you know, deviations are either cartilaginous, bony or both, depending on whether they are far forward or far back, high or low, being at all places in the partition that divides the two nostrils, the septum.

The instruments used are a compressing or breaking forceps and various forms of knives, gouges, spoke-shaves and Asch's cutting scissors or forceps. Plugs or splints may or may not be used afterwards. These are best made of cork or dentist's sheet rubber or cotton.

My object in bringing this one point before you, is to determine if it is a new departure or if others have done the same thing and not thought it worth reporting. I find nothing in literature regarding it.

To be brief, what I claim is that it is easier to break a septum up thoroughly before cutting than after cutting. I use the Roe or Asch straightening forceps first, with a rocking motion and either of the Asch cutting forceps or both of them if the deflection is in the middle of the cartilaginous portion of the septum, and if the deflection is high up or far forward I use the Douglas knives, and if far back the breaking up process alone is sufficient. All spurs should be carefully removed first by using saw or spoke-shave, preferably under the mucous membrane which can be raised in a flap. It is better, when possible, to do this some days or weeks before the septum itself is to be straightened. If this is not possible it can all be done at the same time or afterwards. After the spurs are removed, I grasp the septum well over the deflected portion and with an extreme rocking motion break it up well. Sometimes this suffices, no cutting having to be done.

If the nose is one that has been broken at some time, as most of these cases are, it is necessary to separate the old fragments at their

\* Read before the annual meeting of the American Rhinological, Laryngological and Otological Society, New York, May 23, 1901.

lines of union. For this purpose the Douglas knives are by all means the best. The use of moulded rubber splints or plugs of cotton may or may not be needed. Sometimes they are not needed, but I have used them all for different cases and I prefer the ones made of cork or of dentist's sheet rubber or celluloid, which can be moulded to fit each case. By moulded rubber splints I mean ones made by the operator either just before or during the operation. The process is easy and these splints are much better than any on sale at any instrument makers. Placed in hot water the dentist's rubber used to make plates, is easily moulded to any shape.

The principal point is the fact that the breaking is done first and if then found necessary, any cutting there may be to do can be done. If the septum is well broken, and by that I mean completely movable, but still covered by mucous membrane, which I try to keep as entire as possible, you cannot help but get good results. When the septum is completely broken the resiliency is overcome and will not return nor will the deflection.

598 Madison Street.

## PAPILLOMATOUS GROWTHS OF THE SOFT PALATE.\*

BY WM. F. DUDLEY, M.D., BROOKLYN, N. Y.

Papillomata occur in the oro-pharynx with greater frequency than any other form of neoplasm. As they are benign in character, and generally of small size, they naturally are regarded as of but little importance, or as capable of causing nothing worse than a troublesome mechanical irritation. In text books they are treated curtly, and rather scant space is devoted to their consideration. So exhaustive a work, as that of Lennox Browne's dismisses the subject by stating that: "These benign neoplasms do not as a rule give rise to much inconvenience; but in several instances which have come under notice, the growths have been attached by a very long pedicle, and have produced violent irritation of the larynx and spasmodic cough."

Papillomata usually appear as small wartlike excrescences, or as pedunculated masses attached to the margin of the faucial pillars, the velum, the uvula, or the tonsils. They are slow of development, usually not painful, and not hemorrhagic in tendency.

Histologically, they consist of an excessive proliferation of epithelial cells, supported by a skeleton of recent connective tissue, that indicates the morphology of the tumor, by its villus protrusions upon the surface, and by its digital intrusions to or below the plane of the surrounding normal tissue from which it springs.

The requisite essentials for a papilloma are: "That the papillæ shall be formed of connective tissue, and that the epithelial layers which cover them shall be disposed, as upon normal papillæ." I venture to ask your consideration of the following report of a case of tumor of the velum, which was papillomatous in character, but was not histologically a typical papilloma. Its physical appearance was quite uncommon. Indeed, I can find but two reports of similar growths. The first given in 1896 by Dr. J. W. Gleitsmann before the American Laryngological Association, under the title of, "A Case of Unusual Laryngeal Growth," with the appended diagnosis of "Papilloma durum, probably malignum, and perhaps carcinosum;" and the second case, reported in 1900, before the American Medical Association, by Dr. Joseph S. Gibb, as "An

\* Read before the American Laryngological, Rhinological and Otolological Society, June 15, 1901.



Unusual Papillomatous Growth in the Larynx." His examining pathologist considered it a benign papilloma, having, however, certain structural arrangement of its cells, suggestive of malignancy.

My patient was a man, seventy-one years of age. He had led a moderate and regular life, and has been remarkably free from any serious illness. When eleven years of age he had acute purulent otitis media on the left side. Since then there has been, with short intermissions, a slight discharge of fetid pus from the ear. The tympanic membrane is now absent, and the sense of hearing is quite lost on that side. At twenty-two years of age he had a slight attack of muscular rheumatism in his lower extremities. Three years ago he had acute cardiac dilatation from severe exertion, but now has fair compensation. For twenty years he has worn false teeth fixed in hard rubber plates, upon both upper and lower jaws. The dental plates were so skillfully fitted that during the following eighteen years he had no need to consult his dentist. He has had two small cystic tumors of the scalp; one ruptured spontaneously and the other was excised.

In boyhood he had numerous "warts" upon his hands. Syphilitic infection is denied. He has used wine temperately, and has smoked cigars since he was sixteen years old. For the past twenty years he has averaged twelve cigars per day. The cigars are mild domestic ones, of medium size; but he is a "hot smoker," that is, he cuts a large piece off the point of the cigar, and smokes it vigorously and continuously. He does not inhale the smoke lower than the oro-pharynx, and does not exhale it through his nose. I detail this because the incoming smoke current constituted, for many years, a considerable irritant to the anterior surface of the soft palate, the hard palate having been protected by the dental plate.

I first saw the patient in November, 1899, and he stated that the tumor had then existed for about two and one-half years. It had caused him but slight discomfort until June, 1899, when deglutition became painful. The dysphagia increased, and so seriously affected his nutrition that in six (6) months his weight decreased from one hundred and seventy-two to one hundred and forty-four pounds. He was quite constantly annoyed by an excess of saliva.

Inspection revealed three growths on the anterior surface of his soft palate. The largest mass was circular in shape, was  $\frac{7}{8}$  of an inch in diameter and projected  $\frac{3}{16}$  of an inch from the level of the palate. The surface was nearly flat, being rather more prominent toward the center than at the periphery. The marginal tissue

slightly overhung the basic attachment, forming a sulcus  $\frac{1}{16}$  of an inch in depth around the entire circumference. The neoplasm was equidistant from the lateral buccal walls. Its anterior edge was  $\frac{1}{8}$  of an inch posterior to the hard palate and  $\frac{1}{4}$  of an inch back of the rim of the dental plate. The body of the mass was evenly firm to the touch, but the surface was slightly nodular, and looked soft and pulpy. I would make especial mention of the color of the surface, which presented a pearly glistening appearance, white or very light gray-white in hue, shading to a dark gray at the edge. Two smaller tumors existed on the soft palate, each  $\frac{1}{4}$  of an inch in diameter. One at the edge of the hard palate, and one at the free border of the velum. Excepting in size, they closely resembled the large parent mass. Post-rhinoscopic examination showed the superior or naso-pharyngeal surface of the velum to be free from any signs of inflammation or of adventitious tissue opposite the bases of the tumors. There was absolutely no zone of acute inflammation surrounding the sides of attachment, although a mild passive congestion was general to the mucous membrane of the pharynx, such as is usual in elderly persons. No glandular enlargement existed.

I removed the two daughter growths by means of a Bosworth snare, and sent the tissue to a pathologist of well recognized ability, for microscopic diagnosis. He promptly reported, "that examination of sections of the material reveals it to be composed of papilloma, underneath which is a very lawless carcinoma, which is evidently in the process of metastasis, as plugs of abortive cells can be seen in the lymphatic spaces. Any operative work must be radical to get beyond the malignant tissue."

Both wounds of operation healed within a week, the new mucous membrane being so normal in appearance that the sides of the cuts could scarcely be distinguished. The following week I called Dr. Jonathan Wright in consultation and snared off a fragment of the large mass, which I gave him for study. It was not a satisfactory sample, being largely surface growth, but the patient would not then allow more extensive cutting. The age of the patient, and the macroscopic appearance of the tumor, was thought to indicate possible malignancy. A few weeks later, in December, he had an attack of the epidemic influenza, which then prevailed. He had a pronounced pharyngitis, accompanied by diffuse inflammation of the left faucial tonsil. The tumor of the velum also was involved. It became exquisitely tender and more prominent by about  $\frac{1}{8}$  of an inch. The pharyngeal inflammation subsided in a few days,

and the tumor returned to its former condition, excepting some increase in thickness and a greater amount of the white pulpy material upon its surface. The general health of the patient, however, was discouraging in the extreme. Deglutition was so painful that food was refused, except in a very insufficient quantity, and his vitality rapidly decreased. At night he could take only short, restless naps, and was much inconvenienced by the persistent driveling of saliva.

On February 18, 1900, I excised the entire mass, using a cold steel-wire snare, the loop being of No. 3 piano wire. Dr. Jonathan Wright was present and granted me his welcome advice and assistance. I made no effort to go deeply below the surface of the surrounding mucous membrane, as I feared that the snare would pinch up the entire thickness of the velum and make a buttonhole opening through it into the naso-pharynx. As the wire loop was being contracted, the tissue cut very hard, and I had difficulty in exerting enough traction to draw the encircling snare home into the canula. The wound bled freely at first, but this ceased in ten minutes, and not more than an ounce of blood was lost.

There was no secondary hemorrhage. The wound healed within two weeks, leaving a small stellate cicatrix, exactly flush with the surrounding surface. Deglutition was painless from the day of operation. The patient then went south, and in three weeks gained seven pounds in weight. Two months later I examined him, and found the site of operation covered by apparently normal mucous membrane. He claimed to feel perfectly well. The only new development was a small wart-like prominence upon the dorsum of the tongue. It was situated in the median line, about one inch anterior to the circumvallate papillæ, directly under the former site of the parent growth upon the velum. It resembled a pimple about four or five times the size of a pin head. It was not sensitive or characteristic in color, and has in no wise changed up to the present date.

The following is the report of Dr. Wright upon his findings in the large tumor:

"After a careful examination of the microscopical appearances in the growth from the soft palate on February 18th, I am unable to find any positive evidences which I regard as sufficient to establish the diagnosis of malignant disease. Owing to the comparative slowness of growth, lack of circumjacent infiltration and of glandular metastasis, and the non-recurrence of neighboring daughter islands, I see no other conclusion than that the growth is

at present of a benign nature. I am therefore fully in accord with you as to the advisability of its extirpation by such means as his general condition will permit, rather than entertaining the opinion that it should be left alone or the patient subjected to the danger of a radical operation, involving great danger *per se*."

The elapsed time since the operation is now fifteen months. There is no recurrence and no evidence of gland infection. The patient has entire comfort and has gained thirty-two pounds in weight. These facts tend to confirm the diagnosis of benignity and to encourage a favorable prognosis. Furthermore, non-malignancy was indicated by the absence of any zone of inflammation in the soft palate, contiguous to the attachment of the neoplasm, for the mucous membrane there was practically normal. The clinical behavior of the wound after the operation strengthened this conclusion. No attempt was made for free incision under the mass in order to include any deep extension of the new growth. In tumors assuming a malignant type, the base is the first portion to show characteristic tissue changes, and such an operation as I performed would certainly have hastened and increased any existing tendency to carcinoma.

This neoplasm differed from the true papilloma in lacking the significant digital projections of connective tissue toward the surface or into the underlying structure. It consisted rather of an excessive proliferation of epithelial cells, heaped together in a lawless manner upon the surface, and probably it dipped but slightly, if at all, below the normal face of the soft palate.

Under the microscope the question of malignancy in its initial stage must be determined mainly by the new cell growth in the lymph spaces in the sub-basilar region. In this specimen the cell production was so rapid that there was a dropping of cells into the lymph spaces, but they were dead cells, simply the result of desquamation, and the second microscopic test could discover no evidence of cell multiplication within the lymphatics. The reduplication of cells in the lymph spaces is necessary to identify the malignant neoplasm, but at times it is difficult to obtain this testimony with positiveness, and both the pathologists consulted by Dr. Gleitsmann and by Dr. Gibb protected themselves in their reports by admitting the possible malignancy of the growths submitted to them for judgment.

32 Livingston Street.

## TRAUMATIC DISLOCATION OF THE LEFT ARYCARILAGE.\*

BY HENRY L. WAGNER, M.D., PH.D., SAN FRANCISCO.

A traumatic dislocation of an aryccartilage is extremely rare. The only reference in literature to such that I have been able to find is the case reported by Hopmann, "Heymann's Handb. d. Laryngologie," where a dislocation of the right aryccartilage with a dilaceration of the right vocal cord was observed. The following is, in brief, the history of a case of simple dislocation which came under our observation in the San Francisco Polyclinic:

An elderly man, seventy-two years old, was struck by a drunken soldier—the blow landing on the throat. The victim fell to the ground unconscious, where he lay for some time, until he was picked up by friends. On regaining consciousness he found that he was unable to speak; his breathing was difficult and he experienced an intense pain in the region of the neck where he had been struck.

The next day he sought advice at our clinic, when the following conditions were found to exist: No marked swelling externally, but within the larynx, especially in the region of the aryccartilages and the false and true vocal cords, the swelling was so great that the contour of the different parts of the larynx could scarcely be traced. On the left side a slight crepitation could be felt, though no abnormal mobility of any part of the larynx could be perceived. The patient complained of dyspnea and of a great deal of pain when swallowing. On the other hand, there was no bloody expectoration. The voice, however, was hoarse and the articulation so muffled that his utterance was scarcely intelligible. An ice-compress externally and a laryngeal alkali spray was successfully used. A few days later the swollen condition of the larynx had materially subsided. Neither fracture nor infraction could be observed and the crepitation had disappeared entirely. We were now able to perceive that the left aryccartilage was somewhat dislocated and thrown to the front of its normal position and fixed between the respiration and phonation line of the vocal cord. There was still a good deal of pain, though the dyspnea was considerably lessened—the voice continuing husky. This condition lasted for a number of weeks until it had, under massage treatment, nearly disappeared. At this stage the patient ceased his visits and further observation was prevented.

It is remarkable in this case, that no fracture or infraction of the laryngeal cartilages took place, for at the patient's time of life these cartilages generally become more or less ossified, and that the trauma resulted only in a dislocation of the left aryccartilage from its cricoid-joint.

\* Presented at the seventh annual meeting of the American Laryngological, Rhinological and Otological Society, New York, May 23, 1901.

## IMPROVED PORTABLE APPARATUS FOR HEATING AND STERILIZING COMPRESSED AIR.

BY CHARLES L. ENSLEE, M.D., CHICAGO.

Formerly Surgeon to Illinois Charitable Eye and Ear Infirmary and Professor of Otology, Rhinology and Laryngology, Chicago Eye, Ear, Nose and Throat College; Clinical Instructor in Diseases of the Ear, Nose and Throat, Illinois Medical College.

In THE LARYNGOSCOPE of November, 1898, I published an article describing an apparatus for heating and sterilizing compressed air. The instrument was designed for office and hospital use. It

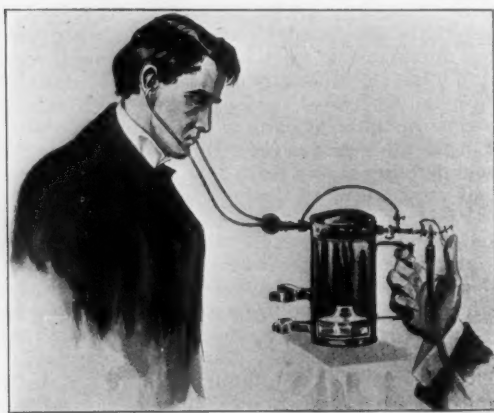


Figure 1. Showing position of patient and instrument in the treatment of deafness.

is a stationary apparatus, too heavy to carry about and rather expensive to operate. Since then I have devised a similar apparatus, which is light and portable. It can be brought near to the patient; it is intended to take the place of the former, is much less expensive and can be used with the Davidson spray bottle, pneumatic dilator or any oil nebulizer.

During my nine years' service at the Illinois Charitable Eye and Ear Infirmary and the Chicago Eye, Ear, Nose and Throat Col-



Figure 2. Showing patient under treatment for catarrhal affections and tuberculosis.

lege, I have used compressed air in every conceivable form and found it to be harmful to the middle ear and respiratory passages



Figure 3. Forcing the hot compressed air through the Eustachian tube into the middle ear for tinnitus aurium and otitis media chronica.

in many cases, unless first heated and sterilized. The hot medicated air is carried deeply into the tissues, destroys micro-organisms and restores the organs more nearly to their normal state.



Figure 4. Davidson spray bottle attached to heater for spraying warm oil in the treatment of catarrh.

In the treatment of pulmonary phthisis and tinnitus aurium I have had most satisfactory results. Consumptives gain very rapidly under this treatment.

#### DESCRIPTION OF APPARATUS.

It is simple in construction, shaped like an ordinary steam atomizer. The body consists of a cylinder three inches wide by six inches high, lined with asbestos and partially filled with seam-



Figure 5. Pneumatic dilator attached to heater which carries the hot sterilized air into the middle ear and lungs.

less copper tubing, coiled and shaped like a cone with the apex directed downward. Under the tubing is placed an alcohol lamp for heating and sterilizing the air as it passes through the hot coils. The degree of heat and the force are regulated by a system of valves.

For further particulars the reader is referred to the former article.

100 State Street.



## SOCIETY PROCEEDINGS.

### WESTERN OPHTHALMOLOGIC AND OTO-LARYNGOLOGIC ASSOCIATION.

*(Proceedings continued from page 455.)*

#### **Treatment of Antrum of Highmore Through Natural Opening.**

By DR. NORVAL H. PIERCE. This paper will appear in full in a subsequent issue of THE LARYNGOSCOPE.

#### DISCUSSION.

DR. GARLICK: I congratulate Dr. Pierce on the ease with which he is able to find this opening. I have examined a great number, both dead and alive, and my experience, even on the cadaver, is that the opening in the majority seems to point backward and upward, and one can easily see the difficulty of entering such an opening from the anterior part of the nose; and as these cases are usually attended with pathological changes, such as growths around the ostium, the difficulty is still further increased. In studying authorities on this subject, Zuckerkandl and others claim it is impossible to enter the natural opening, the wall there being so thin that many who believe they get through the ostium in reality break through the wall. There is hardly a case in my dispensary practice that I do not try to get into this opening, and very few, less than thirty per cent, I can even find, much less enter, though I am sure, when possible, much good can be done to relieve, if not clear up all symptoms.

DR. IGLAUER: I simply wish to voice what has been said. From specimens which I saw in Vienna it seemed a difficult thing on some occasions to pass the probe, even with the head in your hand; and in Hajek's clinic, it was the rule not to waste much time trying to sound the natural orifice, but to force the exploring needle through, under the inferior turbinated bone. In that way you can enter the cavity with ease, and you are sure you are in it. In the other way you are never certain, and when you wash out the nose, you are not sure whether you are washing secretions out of the nose, or the fossa. I should like to ask Dr. Pierce in what per cent of cases he was able to enter the antrum through the natural opening.

DR. BECK: I was surprised at the previous speaker, I being present at the clinic at the time he was. I worked in this clinic and I say it is true, they do not waste time in getting into the antrum, but simply go with the trocar in the inferior meatus. That does not say it is not worth while trying to get through the natural opening, and I know that in the private institution of Hajek in Vienna, the passing of the canula or even the small nasal catheter, is practiced, and they do wash them out and are certain they are washing out the sinus. It is difficult, but that does not say anything against the method. Where there is a good deal of swelling there must be almost a closure, and while cocaine may shrink the tissues, they do not have so much contractility, as these tissues are not like those around the inferior turbinated body.

DR. PYNCHON: Did you say anything as to the position of the head in this operation? I suppose it is tipped over to the side.

DR. PIERCE: No, the head is held erect. If not, you end by leaving some of the fluid and you have to force the water out.

DR. KNAFF (Vincennes): The preceeding gentleman voices my experience to a certain extent in entering through the natural opening. After working in Fränkel's clinic and the cases I had the pleasure of seeing there, I felt that I was ready to go out and enter any antrum of Highmore that might be presented to me for treatment. But after attending a course of lectures by Hajek and seeing a number of wet specimens, I soon found it was a physical impossibility. To say nothing of pathological conditions, take the normal nasal cavities and in the majority of cases, I find it is a physical impossibility to enter the natural opening with an instrument, and the wet specimens I had the privilege of examining—a great many in number—even those I failed to enter, and it would be much more difficult in pathological conditions, and we know by experience that there is no definite guide by which we may be governed in opening or entering that sinus. There are no two nasal cavities I can remember exactly alike. I have seen and entered the sinus by its natural opening, but in very few cases have I succeeded, and I have in one case failed by going through the canine fossa to enter the sinus. I can show a specimen where it was so far to the temporal side that it could not be entered by the canine fossa.

DR. PIERCE (in closing): I can only say that I wash out the maxillary antrum very frequently through the natural opening. I cannot give the percentage of cases in which I have found the opening, but I should say I can get the tube in as many times as

I fail. This is proven by the flouroscope. We can see the tube passing through the osteum into the antrum. Schmidt uses the flouroscope altogether when first finding the opening. Hartman, Moritz, Schmidt and a good many others recommend this method very highly and I still insist upon it that when antral disease is suspected we should first seek for a natural opening. The gentlemen who regard its performance with such incredulity have not perhaps had sufficient experience.

**Some of the Bacteria Found in the Nose.** DR. S. IGLAUER, Cincinnati. This paper will appear in full in a subsequent issue of THE LARYNGOSCOPE.

DISCUSSION.

DR. STEIN: I cannot see how one can decide such important questions by taking secretions from cadavers, even if shortly after death. We have putrefactive changes in every tissue after death, without a doubt, and such a statement is not tenable, even if the experiments were made only a short while after.

DR. GOLDSTEIN: I should like to say that if the conclusion reached by Dr. Iglauder is universally accepted, viz., that the epithelium of the nasal cavity, and not the mucous, has the element of maintaining the healthy condition of the cavity, I wish to substantiate the observation in my own paper, that the destruction of a large amount of intra-nasal tissue is not an advisable thing to do.

DR. IGLAUER (closing discussion): In reply to Dr. Stein, I will say that I did not state that the conclusions were reached solely upon the work which I did upon the cadaver. For that reason it was necessary for me to go through the literature, and I only reached the conclusion after weighing the evidence on both sides. The preponderance of evidence shows the presence of bacteria in the healthy nose. It is true that in animals killed and examined immediately after death, in a considerable percentage of cases, no cultures were found, but in the majority of such cases the cultures were found. The majority of persons who have examined the nose of the healthy human beings have been able to extract micro-organisms, and the only objection is that the bacteria might have come from the vestibule where they had accumulated. As to the germs developing immediately after death, I think that is a mistake. It has been demonstrated in cadavers that it takes from sixteen to twenty hours for microbes to appear in the blood if the body be kept at the room temperature, but if the body be placed in an incubator you can develop them five to six hours after death. Further, if Dr. Stein's

arguments were correct, Fränkel, who examined the antrum in cadavers, would not have found any antra sterile, but, as a matter of fact, in thirteen cases he found no bacteria, showing that none had developed up to the time of examination.

As far as the President's remarks are concerned, I do not wish him to believe that the idea of the protective action of the ciliated epithelium is my own, since the theory has been suggested by several observers, and I so note in my paper, but I do believe that is the all important factor in the subject. In the literature which I consulted, I do not find the theory advanced that many bacteria inspired with the air reach the naso-pharynx, whence they may be swallowed and digested.

**Differential Diagnosis of Affections of the Eustachian Tube, and Spongifying of the Labyrinth.** DR. J. HOLINGER (Chicago).

This paper will appear in full in a subsequent issue of THE LARYNGOSCOPE.

DR. STEIN: I have not very much to say in regard to the subject, and there is no question about this being new and intensely interesting that we know very little about it, and therefore I do not feel equal to discuss the paper to any extent. We are limited in our discussion to the disease and the condition of spongification. I think that the greatest difficulty that would be met with, and that I have found since I have undertaken to use the methods in my limited way and with the limited instruments that I have, would be found in the same complaint that arose a few moments ago by a question from one of the members, and shown by the patient, and which I have found repeatedly is the complaint of the patient, that is the tinnitus. The noises heard by the patients were so marked that the diminishing sounds were overcome and definite conclusions could not be reached. We are at a loss whether they hear the sound or not. As the patient says, "It is just the same as the noises in my head," and he cannot tell just when the change occurs. I want to refer to the second case Dr. Holinger quotes in his paper, showing the fifty per cent improvement after inflation. Those cases show the difficulties of arriving at a definite diagnosis. When the doctor looked at the case examined before us and upon inspection of the drum head, he said, "There is no use going further; very likely this is a tubal disease from the appearance of the drum-head." That is a very differential point in the diagnosis, *i. e.*, the appearance of the drum-head. A drum membrane that is thickened or shows a disturbance in its ossicular chain and is retracted suggests tubal or

middle-ear disease, a condition which is not present in spongification *per se*. But almost every one has some changes of the mucous membrane lining the tube or middle ear, not necessarily showing on examination of the drum, so that it is almost impossible to say that the patient never had a middle-ear disease. Even the history of the patient is not to be relied upon much. The two diseases therefore occurring together might, and most likely would be misleading. The disease spongification of the labyrinth is certainly a very unique one and one we have not recognized until of late years. We are getting so we do recognize and appreciate that there is such a thing, and it will help us in our prognosis and in our statement to the patient, but the possibility of disease of the middle ear always stands out before us and bothers us a good deal. I do not like to go into etiology, because I do not consider myself competent. There is a condition of exostosis or hyperostosis of the middle ear which is very similar to this. In spongification it is not definitely decided whether the changes which occur are due to mechanical interference with the movement of the stapes and the crowding out of the foot-plate from the window, or whether there are physical and chemical changes in the lymph circulating in the canal. That has been brought up and disputed. Now the condition of exostosis or hyperostosis occurring in any portion of the middle ear has been recognized as this disease. These outgrowths have been seen in the middle labyrinthian wall. The etiology of some of these cases, where other portions of the middle ear are involved, has been recognized as of syphilitic origin and the lesion pronounced as syphilitic nodes. They have been practically cured by the anti-syphilitic treatment and therefore this fact has to be taken into consideration in the treatment of this condition of spongification. I simply bring this in as a point to be considered in the diagnosis. In the treatment of these cases of spongification mercury and iodide of potassium are used.

DR. DUDLEY S. REYNOLDS (Louisville): The important part of the test upon which we are told we must rely, is the mental state of the patient. No test has fixed value, in my mind, which depends upon subjective phenomena, or subjective recognition. The same person in different states of mind will not answer in the same manner to the same tests, at different times. The tuning fork is one of the misleading instruments of diagnosis, and I think has very little value. It is like the watch test, which has been almost entirely abandoned. I have examined a great many pensioners seeking increase, and I find it is one of the most difficult problems to determine the degree of deafness in such cases.

I find myself unable to respond to the same tests on different days, and at different times. If I have just had something to eat my hearing is not so acute. I do not hear the watch or the fork so far away, or for the same length of time as when all my perceptions are sharpened by an empty stomach.

These matters must be taken into consideration when it comes to making differential diagnoses, between ankylosis, the spongification of bone, and neoplasms in the tympanic cavity.

DR. BROWN (Columbus): I understood Dr. Holinger to say that aside from the findings on catheterization of the tube, the fork tests in this case pointed to spongifying of the capsule. In the later fork test I understood that he attributed the change in the lower tone limit to the fact that the test was made too long after the catheterization, the effects of which had passed away. Now, after this fork test, the voice test continued to show the same improvement in hearing as was noticed immediately after catheterization. I would like to ask the doctor whether this is a pure case or a mixed case, and if we have mixed cases, how by this test we are to determine the limits of each.

DR. BALLENGER: Dr. Reynolds has stated that the tests vary from time to time, and we therefore are beset with certain troubles which render them of comparatively less value. This is a point that is much magnified and overrated, in my estimation. It is true that every day, and from time to time, we get varying results. For instance, in the Rinné we may get a plus 10 one day and a plus 15 the next, or minus 10 and minus 15, and it will vary in that way, a few seconds, but the important fact to be noted is that it is *plus* or *minus*, not that it is plus or minus 10 or 15. I do not believe the Rinné is of special value except in pronounced cases of deafness. The Weber test is of value only when there is pronounced deafness of one ear. If both ears are affected the Weber test should not be taken as of any special significance in the diagnosis of the case. It is just as important for the otologist to master the exceptions to the functional tests as it is to master the rules. The exceptions are well known and clearly defined and without a complete mastery of them the use of the tests would be of but little value as aids in diagnosis and prognosis. Having mastered the tests and the exceptions the otologist is prepared in a large number of diseases of the middle ear, Eustachian tube and labyrinth to make a differential diagnosis as to the pathology and the location of the lesion. For instance, Dr. Holinger has shown us that by the use of the

forks and other means of diagnosis we can locate the condition known as spongification or what I think is more correctly called "rarefying osteitis," which occurs in the bony capsule of the labyrinth, and more especially in that portion of it near the oval window. I use the fork tests with equal satisfaction in many other diseases of the conduction and perception apparatus, and believe their use should form a part of the routine practice of every otologist. There are three cardinal signs of "spongifying" or "rarefying otitis" of the bony capsule, which are: First, the minus Rinné; second, increase of bone conduction for fork A, and third, loss of hearing for the lower sound limit. These are all signs of middle ear disease, but in an uncomplicated case of spongifying there are no other evidences of middle ear disease; the drum membrane is normal in appearance—not retracted—nor is the handle of the malleus rotated upon its axis. There are no signs of tubal disease nor any other type of middle ear disease so far as objective examination shows; hence when we find these three cardinal symptoms standing alone with no other evidence of middle ear disease, we may feel pretty sure that we have a case of spongifying to deal with. When spongification is complicated with middle ear disease a diagnosis can only be made after treating the case for the middle ear trouble and removing it as far as possible, thus leaving the case clear for a more definite diagnosis as to presence or absence of spongification.

DR. ANDREWS: I have made some experiments in this line and believe there is a great deal yet to be developed. There are three or four tests which point towards spongifying and a number towards tubal disease.

DR. VAIL: I wish only to call attention to the fact that when a patient who is very hard of hearing is being tested for bone conduction he is apt to mistake the *feeling of the vibrations* of the tuning-fork for the tone, and we must keep that in mind and be sure he gets the tone. Another thing is that we have to rely entirely on the statement of the patient, and, of course, we all know what an uncertain quantity that is. Another point is that if we hold the fork on a vertical plane with the ear in making tests for air conduction, we can hear it plainly, or even edgewise we may hear it plainly, but if we hold it with either of four angles, or the edges next to the auditory canal, the fork is silent. The sound waves from the face of the vibrating-forks neutralize those from its sides and at the places of meeting, the angles, silence is the result.

DR. STEVENSON (Richmond): I have made a great many tests with these forks and find the trouble is it needs a great



deal of time, and tests ought to be often repeated. The patients are affected a good deal by outside sounds, and if we could have a silent room in which to test them, especially in the large cities, I think we could have better results. I noticed the doctor, in making the tests, spoke in a little louder voice the second time. The heavy fork is unreliable. The patient is unable to distinguish whether it is tinnitus or vibration of the fork. I would like to ask if it is not often true that these two diseases are confounded. We must remember that the middle ear is not larger than a bean and the capsule not larger than a pea, and with such a delicate apparatus we must have local diseases which give confusing results. I hope the day will come when we will have something better than the tuning-fork. I carried on a like series of experiments with myself, and found it hard to get the same results on different days.

DR. J. O. STILLSON (Indianapolis): I would like very much if Dr. Holinger would inform us if these tuning-forks are of any value in testing malingerers. Of course, we have a lot of experience in testing them, and it seems to me it will be a great benefit if by means of the tuning-fork we can ascertain positively whether the patient hears or not.

DR. C. W. DODD (Cincinnati): We all know what disadvantages there are connected with the use of the tuning-fork. I have for several years past largely done away with the tuning-fork for testing hearing by air conduction, and in its place substituted a method of my own conception, which has the merit of simplicity with efficiency. It is always instantly ready at hand for use, can be used on both sides of the head at the same moment or in rapid alternation and it is under the finest control; intensity can be instantly varied or the sound completely stopped, and all this without the patient witnessing any manipulations on the part of the examiner. The method is simply the vibration click produced by rapid snapping of the nails of the thumb and third finger; the end of the finger is firmly pressed against the thumb for support, and then perfect control is had over the click of the nails. By this nail-click test we *know* when sound is being produced, even when so feeble that the examiner cannot hear it when at arm's length from his own ears; whereas with the fork, the examiner does not know just the moment the sound ceases unless he keeps his own ear close to the fork. I have specified the use of the third finger; this is, of course, a mere matter of individual choice; others might find the middle finger more serviceable. The first, or index finger, is not so efficient, because, being next to the thumb, its nail cannot be brought into such perfect con-



tact with the thumb nail as can the nail of the middle, or, still better, the third finger.

I can promise, from personal experience with this test, now for several years, great satisfaction with its use; of course, I fully recognize that the fork furnishes certain test features that are entirely wanting in my other method, nevertheless the finger test will be found all sufficient in a large percentage of our hearing tests.

DR. HOLMES: Siebenmann, Hartmann, Bezold and others have written upon this subject in a masterly manner. Just what percentage belong to the class of cases in which we have the increased bony formation independent of catarrhal trouble springing from the pharynx and nose, I believe is an unsettled question. The subject is so far in the process of development, and I think we should all feel it incumbent upon us to enter upon the study of it with interest, and a determination to master it thoroughly.

DR. HOLINGER (closing discussion): These tests have been made for ten or fifteen years. I have made them regularly, while assistant of Siebenmann. The post mortems show the accuracy of the diagnosis; therefore these facts are here to stay, and that all is a young and short-lived speculation or scheme is a mistake. The technique of the whole examination is not simple but difficult. But technical difficulties must be overcome. It took me two months to become accustomed to it. You cannot expect therefore that I can show you all in a half hour or an hour. I hope I will get the material of the Illinois Ear Infirmary and then I will have sufficient material to demonstrate these tests. The more you get used to them the better you will think of them. The whole thing, I admit, may seem to you a little nebulous. You will think different after a while. Was it not the same thing with the examination of the fundus of the eye? I am not doing that work now, but I remember when I began to use the ophthalmoscope as a student everything seemed indistinct. You know how clearly a man learns to see the fundus later on. The same here. In answer to Dr. Brown, I say combinations are possible. Spongifying of the labyrinth I am able to diagnose when I have cured the affection of the tube. That is to say, when there is a normal drum membrane and the air enters the middle ear through the catheter in a normal way. If then the condition persists, the rest of the deafness is due to spongifying. I do not know whether this patient will be restored positively to normal hearing with treatment; I can only say he will be improved greatly and afterwards when those other conditions are cured then we make another

test and will find what of deafness and other symptoms is left. There have been a number of post-mortems, and in none of the cases where the diagnosis was made in the living was the finding found to be opposite. Much remains to be done. Tinnitus, is not characteristic of any disease of the ear. It occurs in spongifying as well as in affections of the tube. The interference of tinnitus with this test is not very important. Dr. Vail said we had to rely too much upon the patient. The fact is that if you make three or five Rinne tests in succession you will find that the tests do not vary two or three seconds one from the other. A malingerer could not deceive you so accurately. You can catch pretenders indirectly. You can show that a man has not got a definite disease. As to the time for these tests, I am able to make the whole test in twenty minutes and I think we ought to be able to give a patient that much time. If a doctor has so many patients that he cannot give twenty minutes for a first examination he may give some to the next fellow who needs them. As to the mental state of the patient, I think Dr. Ballenger answered that. It is not so important. The mental state is not sufficient to change these tests.

*(To be continued.)*

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## LARYNGOLOGICAL SOCIETY OF LONDON.

SIXTY-SEVENTH ORDINARY MEETING, JUNE 7, 1901.

E. CRESSWELL BABER, M.B., President, in the Chair.

The following cases, specimens and instruments were shown:

### **Case of Ulceration of the Larynx (Tuberculous ?) in a Male æt. Forty-eight.**

Shown by DR. DE HAVILLAND HALL. The patient was first seen on April 30, 1901, when he complained of hoarseness. No history of any venereal disease can be obtained. The patient lost his voice twelve months ago, but he had no treatment until last April. He has had a cough and some expectoration, but no hemoptysis. He has lost weight. There has been thickening and ulceration of both vocal cords and interarytenoid commissure. There has also been some ulceration on the laryngeal aspect of the epiglottis. There are physical signs of consolidation with râles at both apices, and a few tubercle bacilli have been found in the sputum.

Under theunction of blue ointment and the administration of potassium iodide—twenty grains three times a day—there has been considerable subjective improvement, but very little objective alteration in the larynx.

DR. STCLAIR THOMSON was of opinion, from an inspection only of the larynx, that it was a case of tuberculous ulceration in a syphilitic subject, who had probably had pachydermia, and had now contracted tuberculosis of the larynx.

DR. DE HAVILLAND HALL said this was precisely the view he took of the case when it was in hospital, though he was unable to obtain any history of syphilis.

### **Case of Malignant Laryngeal Growth in a Man æt. Fifty-two.**

Shown by DR. STCLAIR THOMSON. This patient complains of hoarseness coming on slowly for the last two and a half months. He attributes it to repeated colds since January, so that we may take it that the laryngeal affection dates from at least five months ago.

His voice is now reduced to a hoarse whisper. The anterior four-fifths of the right cord is occupied by an oblong growth with an irregular mammillated surface; the tips of some of these excrescences present the white snow-like surface which has been referred to at previous meetings of the Society in connection with the question of malignant disease. The anterior third of the left cord is also

infiltrated, and shows one or two of these white-tipped mammille. The posterior part of the same cord appears as if indented by the larger growth on the right cord. Both cords move, but while the left moves freely, the right is decidedly limited in its excursions.

There is nothing in the patient's history to arouse a suspicion of lues. He has no cough, expectoration, or hemoptysis. The temperature is normal, the pulse is not hurried, and the chest sounds are normal. He has taken 5 grains of iodide of potassium with some liquor hydrargyri perchloridi since May 25th without any apparent effect.

MR. SPENCER thought it was malignant and now bilateral owing to infection from the opposite side. In his opinion it required early and extensive operation.

MR. WAGGETT asked Dr. StClair Thomson if he had contemplated performing thyrotomy, and if so, would he bring the case before Society when he had done so. He presumed thyrotomy should be undertaken as an exploratory measure.

DR. STCLAIR THOMSON said he thought of performing a thyrotomy, and he wished to know whether members present thought the diagnosis could be positively made without recourse to the excision of a piece of the growth. He himself thought removal of a portion was unnecessary, for if the examination was negative it would not alter their present opinion. Before proceeding to a thyrotomy he should like to know how freely one might remove the parts when both cords were affected? Of course, one might scoop out very freely the whole of one side of the interior of the larynx. Could one be as free on the other side without fear of stenosis? He had had one case in which the whole of one of the cords right up to the arytenoid was removed, and the anterior fourth of the opposite cord as well, but in the present case it seemed to him that not only the whole cord originally affected, but two-thirds of the opposite cord required removal; if at the exploratory operation he found this was so, would it be safe to carry it out?

SIR FELIX SEMON said that he had several times found it necessary to excise both vocal cords, and that no subsequent stenosis had resulted. He did not think that such an event was to be feared. He quite agreed with Mr. Spencer that in all probability there was secondary disease of the left vocal cord, owing to auto-infection. Probably, however, it would be found sufficient to simply excise the left vocal cord, if this suspicion should turn out to be justified, with curved scissors.

#### **A Case of Frontal-Sinus Suppuration Fourteen Months After External Operation.**

Shown by DR. STCLAIR THOMSON, and

### Three Cases Demonstrating the Results of External Operation on the Frontal Sinus.

Shown by DR. HERBERT TILLEY.

DR. THOMSON'S CASE.—This case was shown to illustrate the completeness and permanence of the cure of nasal suppuration, due to frontal sinusitis, and also to demonstrate that the external scar was trifling and had not increased with time.

The ordinary external operation was performed on April 10th, 1900. A photograph was shown of the scar three months later, and by comparison with the patient's actual condition, it would be seen that this had not increased.

The patient still has suppuration in the antrum, which is drained through a tooth socket. She had, however, been instructed not to syringe this out for forty-eight hours, and as she had not had occasion to wash her nose out since the date of operation on the frontal sinus it would be allowed that the freedom of the nose from all trace of pus was both genuine and complete. She now never requires more than one handkerchief a day, and states, that were it not for esthetic reasons, two a week would suffice.

DR. HERBERT TILLEY'S CASES.—These cases were shown to demonstrate that if the radical operation was effectually carried out, there was no reason why a recurrence of the discharge should take place with lapse of time, as he understood Dr. McBride to have suggested at one of the recent meetings of the Society, and that there was nothing terrible about the operation. These cases had been operated on fourteen months, nine months, and six months ago respectively, and there was still no trace of purulent discharge into the nostrils. Two of the cases also illustrated how slight a deformity is caused by a somewhat radical operation.

DR. VINRACE confessed to having used the word *terrible* in connection with these operations, as he considered them both formidable and of a serious nature. He laid stress on the importance of freeing the inferior meatus or breathing channel of the nose from all obstruction, and of giving that a fair trial before proceeding to the radical operation. He gathered from the patients that this had not been done in the cases before them. He also considered that it seemed more rational to enlarge *per nares* the natural communication between the frontal sinus and the nose, namely, the infundibulum, then perform an external operation.

DR. FITZGERALD POWELL asked the exhibitors to give the Society some detailed information as to the methods adopted in the operative treatment of these cases. He would like to know, firstly, what amount of bone was removed—whether the whole of the anterior wall of the sinus or only a portion of it. Also, if the opening from

the nose to the sinus was enlarged and kept open by a tube, either solid or hollow, for purposes of drainage; and, secondly, as to the method of packing and general treatment. They seemed to him to be very excellent results, upon which the operators should be congratulated.

MR. SPENCER asked Dr. Tilley to give some information with regard to the comparative frequency of unilateral and bilateral affection of the frontal sinuses. Dr. Tilley seemed to meet with unilateral cases chiefly. Was it that these cases was more frequent? At one time very nearly fifty per cent of cases of frontal-sinus empyema were found to be bilateral, but he had noticed Dr. Tilley showed fewer bilateral than unilateral cases. Was this due to the fact that by doing the radical operation on one side early he prevented the empyema from becoming bilateral?

DR. MCKENZIE JOHNSTON said that, generally speaking, he thought the antrum of Highmore a much simpler thing to treat than a frontal sinus. In several of these cases, however, the antrum had been opened, and from the fact of the patients still wearing a tube, he presumed that in these cases, as far as the antrum was concerned, the termination of the case was not yet reached. He would like to know when it was proposed to remove the tubes, and whether the "cure" was considered complete before the antrum was in a satisfactory condition.

DR. FURNESS POTTER asked Dr. Tilley what symptoms he considered necessitated the operation. Would he do the operation in every case in which he had reason to suppose that pus came from the frontal sinuses?

DR. PEGLER said it was just worth remarking with regard to Mr. Vinrace's remarks that there was much difference of opinion as to which really was the "breathing channel" of the nose.

THE PRESIDENT said the main point of interest was what should be the exact radical operation undertaken. The treatment should be as short as possible, and leave as little scar as possible. On these two points the Society would be glad to hear the remarks of Dr. StClair Thomson and Dr. Tilley. He thought it was clearly settled, as had been mentioned by Dr. Tilley, that before operating on the frontal sinus it should, if possible, be washed out from the nasal cavity. It was usually also necessary to first remove the anterior end of the middle turbinated body.

DR. STCLAIR THOMSON said that, with regard to the severity of the operation, the temperature chart showed this not to be the case. His patient was out of bed on the fourth day after the operation, and on the seventh was up for the whole day, and in about a fortnight left the hospital. So at any rate it was not such a "terrible" operation as regards the time the patient had to remain in bed. This woman had the operation done because the discharge was such that she averaged six to eight handkerchiefs a day, and sometimes in the twenty-four hours she might require eighteen. The symptoms were pain over the left eye and neuralgia. She had had discharge for ten months. The disease was evidently brought to a head by an attack.

of influenza, which made her frontal-sinus condition much worse. There was plenty of room in her nose to admit of proper breathing when it was not obstructed by pus. When the frontal sinus was opened it was found full of pus and entirely lined with degenerated polypoid mucous membrane. The anterior end of the middle turbinate was removed sixteen days before the operation, which evidently had given sufficient room for drainage, since for some two months after the operation the patient was able to blow air from the hole in the forehead. Even now, if one put the hand on the forehead when the patient distended her nose, one could feel the scar bulge. Several members had noticed this. With reference to the suggestion of treating the frontal sinuses from within the nose, the matter had been considered by the Society on a previous occasion. In this patient, knowing that unsatisfactory results had been obtained, and that fatal cases had been put on record, he determined to keep the wound open for a long time. He operated on April 10th, and did not allow it to close till June 30th. This was one of the factors in the treatment of his case. Another was that he cleared out the fronto-nasal duct, but left no drain into the nose. His patient had, as Dr. Johnston mentioned, still empyema of the antrum. He had thought it might simply be a reservoir for the frontal sinus, and so he left it alone, hoping it would spontaneously heal when it ceased to be filled from above. But the antrum was still secreting pus, though in very small amount. At some future time he intended operating on the maxillary sinus.

DR. TILLEY, in answer to Dr. Vinrace, observed that removal of nasal polypi was a purely temporary measure, and did not relieve the headaches for which the operation had been performed in the cases exhibited. One of his patients had been having his polypi periodically removed for seventeen years at different hospitals. He also pointed out that other questions raised by Dr. Vinrace and Dr. Potter would be found answered in the Proceedings of the Society for February, 1901, p. 78. In reply to Mr. Spencer, Dr. Tilley said that in twenty-three cases of frontal-sinus empyema with which he had had to deal, ten cases had been bilateral.

#### **Two Cases of Thyrotomy for Malignant Disease of Vocal Cords.**

Shown by DR. HERBERT TILLEY. In these two cases the operation had been performed five and three and a half years ago respectively. The patients had enjoyed perfect health since, and in the second case the voice was quite good. In the first case the left vocal cord and arytenoid cartilage had been removed, and a few weeks after the operation a large granulation appeared in the anterior commissure, which was still present in a cicatrized form. Had this not been carefully watched it might have been regarded as a recurrence. Sir Felix Semon had confirmed the opinion of the nature of the case before it was operated on. Full details of both cases may be found in the *British Medical Journal*, October 22, 1898.

**Case of Infiltration on Left Cord in a Man æt. Twenty-Eight.**

Shown by DR. FURNESS POTTER. This patient, a railway porter, whose duties entailed very considerable use of the voice, had recently come under observation complaining of huskiness and a feeling of irritation in the throat, which had troubled him for the last six months.

On examination the uvula appeared to be somewhat elongated, and the left cord was seen to be reddened and infiltrated in its whole length, and it presented an uneven granular appearance. The arytenoid region was unduly red, but otherwise the larynx was in normal condition.

The chest had been carefully examined, but no sign of pulmonary mischief nor history of syphilis, and the family history was free from evidence of tuberculous taint.

THE PRESIDENT thought the case might be tubercular, but he understood there was no evidence of tubercle in the lungs. There was no want of movement of the cords.

DR. FURNESS POTTER thought it was tubercular.

**Specimen from a Case of Sarcoma of the Tonsil, with Microscopic Slide.**

Shown by DR. MCKENZIE JOHNSTON (Edinburgh). L., male, æt. twenty-eight years, a farm servant from Shetland, was sent to me at the Royal Infirmary about the beginning of December, 1900, on account of a tumor in his throat. He stated that he had only been aware of its presence for about six weeks, but on inquiry it was found that his friends had noticed for about three months that his speech was thicker than usual. He had no pain or discomfort, and had nothing to complain of except the fact that he felt a lump in his throat, although, latterly, he noticed that when swallowing liquids they were occasionally regurgitated through the nose.

On inspecting the throat, the left tonsil was seen to be enormously enlarged, extending inwards for some half inch beyond the middle line, and also well down into the pharynx. In color and appearance it appeared much like an hypertrophied tonsil, only somewhat softer and more vascular. Nothing else abnormal could be seen. Several friends to whom I showed it were inclined to think that the condition was a simple inflammatory swelling. I ordered a course of iodide of potassium, but it was soon evident that in spite of this the growth was rapidly increasing, and that glands underlying it were also enlarging. I then removed the greater part of the projecting mass with the electro-cautery, and Dr. Gulland, who kindly examined it for me, pronounced it to be



a rapidly-growing round-celled sarcoma. It was therefore evident that if it was to be removed the operation should be undertaken as soon as possible.

On January 3, 1901, my friend Mr. David Wallace operated and I am further indebted to him for the following notes of the steps of the operation. The remains of the tonsil and tissue between the pillars of the fauces and the pillars themselves were removed, together with two enlarged glands situated posteriorly and below the angle of the lower jaw. An incision corresponding to the posterior part of Kocker's normal incision was made behind and below the angle of the jaw, the enlarged glands removed, and a ligature placed on the external carotid artery. The jaw was exposed in front of the masseter muscle and divided obliquely, in a line from above downwards and forwards, and the two portions widely separated. This, after opening the mouth, exposed the region of the tonsil very freely, and allowed excision of the diseased tissues to be readily carried out. There was practically no bleeding. The jaw was united by silver suture, a drainage-tube inserted through the opening into the mouth, and the posterior part of the wound completely closed. The patient made an excellent recovery, and at the present date remains perfectly well.

**Specimen of a Cheesy Mass found in an Adenoid Growth after Removal.**

Shown by DR. MCKENZIE JOHNSTON. The cyst appeared to be about the size of half an almond, and was filled with a cheesy material.

DR. STCLAIR THOMSON did not think these cases were very rare. One often saw them in acute adenitis of Luschka's tonsil, but in the chronic cases they were more rarely visible in the mirror. He had had a case sent to him at the Throat Hospital for recurrent attacks of laryngitis, tracheitis and bronchitis. The patient had adenoid remains, which were removed, and all present were struck by the sickening smell of the caseous matter in the adenoid growths. It was quite possible that from time to time it gave rise to infection, spreading downwards. He did not think Dr. Johnston looked upon this condition as being of rare occurrence, but showed his specimen as being a good example of these cases. They occurred more often than was suspected.

**Sketch of an Aneurism of the Aorta in Which Paralysis of the Left Vocal Cord was the only Physical Sign During Life.**

Shown by DR. DONELAN. This patient, an Italian man, æt. thirty-nine, was admitted into the Italian Hospital on February 14th, com-

plainings of lost of voice, slight dyspnœ, and some numbness and pain in the left arm. He had become slightly hoarse two months before, and had complete aphonia for fifteen days before admission.

There was no history of syphilis. No physical signs could be elicited by the stethoscope. On the 15th, at the request of Cavaliere Naumann, under whose care he was, I made a laryngoscopic examination, and found the usual evidences of paralysis of the left recurrent nerve.

The diagnosis made was paralysis of left recurrent from intrathoracic tumor, probably an aneurism.

On the following morning the patient was suddenly seized with symptoms resembling those seen in angina pectoris, became rapidly collapsed, and died within two hours of the seizure.

The post mortem showed a healthy state of all the organs with important exception of the aortic arch, where a small oval aneurism was situated on the postero-superior aspect, and immediately outside the origin of the left subclavian. The tumor overlapped and compressed the left recurrent nerve in the manner shown in the rough sketch exhibited.

**Case of Separation of the Upper Lateral Cartilage of the Nose in a Male æt. Twenty-Five.**

Shown by DR. FITZGERALD POWELL. On May 1st of this year this patient consulted me, complaining of considerable nasal obstruction, discharge, and deformity of his nose. He stated that on June 15, 1900, he received a blow on the nose, which was followed by bleeding.

In November, 1900, he had an attack of influenza, which left him with much nasal obstruction, and in December he consulted a specialist, who did not find much the matter in his nose.

In January, 1901, a swelling suddenly appeared on his septum, which was opened, and contained pus; a drainage-tube was put in. From this time his nose began to sink and broaden.

When I saw him last May his nose had sunk in at the junction of the cartilages and the bones. The nasal bones were thickened, and the nose widened. The septum was deflected to the left, was swollen, and had an opening of a sinus, which was discharging. The upper lateral cartilages had become separated from the nasal bones.

At the present date he has much improved, the nose is more natural in shape, not so thick and wide, though the depression remains. The sinus is closed; there is no discharge, but he says he sometimes has attacks of epistaxis.

THE PRESIDENT understood that portions of cartilage had come away, the result being that the cartilaginous arch had fallen in.

DR. FITZGERALD POWELL said he showed this case as he thought it would be of interest as a comparison with a somewhat similar case shown by Dr. Frederick Spicer at the last meeting of the Society. Dr. Spicer thought that the condition in his case arose from the pressure of polypi, but the general opinion of the members was that it was due to abscess of septum, probably arising from traumatism. In the case now before them the man had received a blow on his nose on June 15th, and as late as seven months afterwards an abscess formed in his septum, which was opened and drained, and from that time the falling in of the nose took place from the separation of the cartilages. The sinus was discharging up to a month ago, but was now healed, some necrosed cartilage came away, but no bone was observed. The shape of the nose appeared to be improving.

#### **A Case of Chronic Ulcer of the Septum (Tuberculous ?).**

Shown by MR. WALTER SPENCER. This occurred in a girl æt. eighteen, who worked with dusty wollen goods. The ulcer was situated on the left side of the septum, and had been present for a year, during which time there had been some healing at its lower part, but some extension upwards. There is now an ulcer about  $\frac{1}{2}$  cm. in diameter covered by granulations, which easily bleed. The cartilage is not exposed. She has a ringing cough, but there is no evidence of lung or laryngeal disease, nor have tubercle bacilli been found with sputa. The treatment applied has been simple, only alkaline douches and ointments.

DR. MCKENZIE JOHNSTON said from the view which he had obtained there seemed nothing to favor the idea of tuberculosis. He considered it of a simple nature.

MR. PARKER looked upon the case as one due to dry rhinitis.

THE PRESIDENT thought there was an absence of evidence of tuberculosis in this case.

#### **Three Cases of Bilateral Abductor Paralysis in Tabes Dorsalis.**

Shown by SIR FELIX SEMON.

*Case I.*—G. B., toy-maker, æt. fifty-one (under Sir William Gowers). Syphilis twenty-five years ago. No secondary symptoms.

Present illness began three or four years ago with pains and pins-and-needles in legs and feet, and some difficulty in walking. Quite from the beginning he had "choking attacks" at night. Stridor at night first noticed about three years ago, and during last three months has been present also in the daytime if he exerts himself at all. Has also had transient diplopia and a girdle sensation. Hesitant micturition for two years. No incontinence.

Status, April 26th, 1901.—Pupils R. > L., Argyll-Robertson type. Partial bilateral ptosis. All deep reflexes absent. Superficial reflexes brisk. Marked ataxia of legs. Well-marked Rombergism. Well-marked analgesia of trunk, ulnar borders of arms and legs.

Larynx, May 3d.—Marked double abductor paralysis, almost complete. The left cord is a little better abducted than the right, but even then the maximum width of the glottis in inspiration is only  $1\frac{1}{2}$  to 2 mm. Subjective and objective dyspnea is considerable.

4th.—Tracheotomy performed by Mr. Ballance.

31st.—The glottis is a little wider than it was four weeks ago during inspiration.

In remarking on this case, Sir Felix Semon said he wished to draw particular attention to the fact that since the performance of tracheotomy, the inspiratory inward movement of the vocal cords had ceased. This fact was held to be important in connection with the question whether such inspiratory inward movements were due to a purely mechanical cause, viz.: to the rarification of the air below the stenosis during inspiration—a view held by the older laryngologists, and the speaker—or whether it represented an active inward movement of the vocal cords due to the fact that during respiration both abductors and adductors were simultaneously innervated, and that the abductors having been paralysed, the innervation of the adductors alone prevailed. This view had been advocated by Rosenbach, Burger, and others. If it were correct, one would naturally expect the inspiratory movement to continue even after the performance of tracheotomy. The disappearance of the movement in the present case was held to point strongly in favor of the mechanical theory.

*Case II.*—C. L., barman, æt. thirty-two (under Dr. Bastian). Syphilis fourteen years ago. Temperate in alcohol, non-smoker.

Present illness began three years ago with a heavy feeling in his feet and sudden giving way at the knees. Soon after he began to have lightning pains. Two years ago he was told that he snored very much at nights, a thing which previously he did not do; this snoring has continued ever since. Sixteen months ago began to have difficulty in walking, which has steadily increased. About five months ago first had choking attacks at night, and on one occasion lost consciousness in one of these attacks. No bladder trouble.

Status, May 13th.—Pupils small, R. > L., Argyll-Robertson type. Knee and Achilles jerks absent. Elbow and wrist jerks, di-

minished. Superficial reflexes brisk. Marked ataxia of legs, with extreme Rombergism. Some analgesia of legs.

Larynx, May 31st.—The larynx shows abductor paralysis on both sides with paresis of the internal thyro-arytenoid and the inter-arytenoid muscles. The glottis in front on deep inspiration forms a small ellipse, the vocal processes of the arytenoid cartilages almost touch one another; behind them a comparatively large triangular gap remains.

*Case III.*—T. W., smith's laborer, æt. thirty (under Dr. Bastian). Father of patient died of "religious mania." Syphilis fourteen years ago. No secondary symptoms.

Present illness began with gastric and rectal crises two and a half years ago, and have recurred at intervals ever since. Ten months ago began to have also difficulty in walking and lightning pains. About the same time first had choking attacks at night, and soon after noticed a change in his voice. Has had also girdle sensation and precipitate micturition.

Status, March 1st.—Pupils L. > R., Argyll-Robertson type. Double ptosis. Knee jerks absent. Slight ataxia and Rombergism. Analgesia of ulnar borders of arms and of lower part of trunk.

Larynx, March 8th.—Considerable bilateral and asymmetrical abductor paralysis with slight paresis of the internal tensors. On phonation the cords come promptly together, and only a very small elliptic gap remains in the middle part of the glottis. On deep quiet inspiration the cords are never separated more than about  $2\frac{1}{2}$  mm. in the broadest part of the glottis; their inner borders are slightly excavated, and a small triangular gap remains in the cartilaginous part of the glottis. The speaking voice has a slightly forced mournful character. Patient states that he has lost several notes in the upper register.

The PRESIDENT remarked on the great interest of these cases, but at such a late hour of the meeting he thought it would be impossible to enter upon a full discussion of the subject. The case in which tracheotomy had been performed was, he thought, of especial interest.

DR. FITZGERALD POWELL asked Sir Felix Semon when in his opinion it was necessary to perform tracheotomy in such cases.

MR. WAGGETT asked what Sir Felix thought of the plan of early tracheotomy in such cases as these, the ordinary cannula being replaced by a solid plug. This measure would relieve the patient of danger from sudden and fatal dyspnea, while at the same time avoiding the disadvantages of permanent respiration through a cannula.

SIR FELIX SEMON said that at this late hour it was impossible to fully enter upon the discussion of the points which had been raised by the various speakers. With regard to Dr. Fitzgerald Powell's

question, he wished to say that this subject had been discussed quite recently in the Society, when he had stated the principles which now guided his action as to the performance of tracheotomy in cases of bilateral abductor paralysis in tabes. It was a very difficult question, indeed, and the decision must be made dependent upon the degree of stenosis, and the question of serious choking fits supervening, whilst a full explanation of the situation ought to be given to the patient, and the decision in doubtful cases be left to him. The occurrence of paralysis of the interarytenoid muscle, which as a rule followed the original abductor paralysis somewhat later than the paralysis of the internal tensors, was a blessing in disguise to the patient, as the greater opening of the glottis resulting from this paralysis greatly diminished the danger of suffocation. As to the permanent wearing of a tube, he thought that the dangers and discomforts it was said to entail were more theoretical than real. He had a patient, a stock broker, on whom he had performed tracheotomy twenty-one years ago for bilateral abductor paralysis, who was fully able, whilst still wearing his tube, to follow his occupation, and he had never suffered from bronchial or pulmonary affections.

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- The Value of H<sub>2</sub> O<sub>2</sub> in the Treatment of Chronic Purulent Otitis Media.** G. A. GILBERT (Danburg, Conn.) *New Engl. Med. Monthly*, Jan. 1901.

## VII. MASTOID AND CEREBRAL COMPLICATIONS.

- Mastoiditis Following Primary Tubercular Otitis Media.** N. SENN (Chicago.) *St. Paul Med. Journ.*, June, 1901.
- Report of a Series of Cases of Mastoiditis, With Operation.** J. WILLIAM WATSON (Baltimore.) *Journ. E., E. and T. Dis.*, May-June, 1901.
- \*Infective Sigmoid Sinus Thrombosis.** C. R. DUFOUR (Washington.) *N. Y. Med. Journ.* March 23, 1901.
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- \*Case of Temporo-Sphenoidal Abscess following Middle-Ear Suppuration; Operation; Recovery.** PERCY JAKINS. *Lancet*, March 30, 1901.
- \*Lateral Sinus Pyemia and Cerebellar Abscess with Cheyne-Stokes Respiration; Recovery.** H. F. WATERHOUSE. *Lancet*, March 30, 1901.

## VIII. THERAPY.

- \*Further Note on the Production of Local Anesthesia in the Ear, Nose and Throat.** ALBERT A. GRAY. *Lancet*, March 9, 1901.
- A New Point of View in the Treatment of Acute Rhinitis.** GUSTAV SPIESS. *Archiv für Laryngol.*, Band xii, Heft 1.
- \*Protargol: Some of Its Uses in the Nose and Throat.** WILBUR F. SKILLMAN (Baltimore). *Journ. Eye, Ear and Throat Dis.*, March-April, 1901.

**Lysol for Disinfecting and Maintaining the Brilliancy of the Rhinoscopic Mirror.** ALEXANDER BAUROWICZ. *Archiv für Laryngol.*, Band xi, Heft 3.

**The Treatment of Lateral Pharyngitis by Electrolysis.** JULIUS DERENBERG. *Archiv für Laryngol.*, Band xi, Heft 2.

**Nitrate of Silver and Other Salts of Silver in the Treatment of Inflammation of the Mucous Membrane of the Upper Respiratory Tract.** E. B. GLEASON. *Therapeutic Gaz.*, March, 1901.

**\*Superheated Air in the Therapeutics of Chronic Catarrhal Otitis Media.** G. W. HOPKINS (Cleveland). *Med. Record*, June 1, 1901.

#### IX. NEW INSTRUMENTS.

**An Improved Introducer for Intubating the Larynx.** F. W. DEAN (Council Bluffs). *Med. Herald*, June, 1901.

**\*On the Use and Abuse of Nasal Sprays.** DUNBAR ROY (Atlanta, Ga.) *St. Louis Courier Med.*, June, 1901.

#### X. MISCELLANEOUS.

**\*Pathology of Deaf-Mutism.** J. J. CARROLL (Baltimore.) *Journ. E., E. and T. Dis.* March-April, 1901.

**Cretinoid Myxedema or Arrested Development Causing Degeneracy, Treated by Desiccated Thyroids.** M. H. EVANS (Joplin, Mo.) *Western Medical Review*, May 6, 1901.

**A Contribution to Our Knowledge of Leprosy of the Upper Air Passages and the Spread of the Leprosi Bacillus.** P. H. GERBER. *Archiv für Laryngol.*, Bd. xii, Heft 1.

**Pathological Appearances in Difficult Dentition.** DRESSEL. *Archiv f. Laryngol.*, Bd. xi, Heft 2.

**Intra-thoracic Aneurism with Especial Reference to Its Actinoscopic Examination.** GLATZEL. *Archiv f. Laryngol.*, Bd. xi, Heft 1.

**Note on the Concurrence of Measles and Diphtheria.** J. D. RAWLINGS. *Lancet*, April 13, 1901.

**Parotitis After Abdominal Section.** B. ADDENBROOKE. *Lancet*, March 16, 1901.

**A Case of Sneezing.** MORSE. *Medical Bulletin*, April, 1901.

**\*Poisoning by the External Use of Aniline Oil.** STCLAIR THOMSON. *Lancet*, April 20, 1901.

**A Case of Myxedema.** CHEVES BEVILL (Winfield, Ark.) *St. Louis Med. and Surg. Journ.*, July, 1901.

## SELECTED ABSTRACTS.

Edited by

FAYETTE C. EWING, M.D., St. Louis,

\* with the collaboration of the

EDITORIAL STAFF.

### **Primary Chancre of the Septum of the Nose—W. FREUDENTHAL—** *N. Y. Med. Journal*, May 11, 1901.

A brief résumé of the literature on extragenital chancres is given. Primary lesions of the nose are not common. The case under the author's observation occurred in a physician, and was not diagnosed as specific for some time. The patient remembered, after his attention had been called to the possibility of infection from his fingers, that he had examined a female, per vaginam, who proved to be syphilitic. It is possible that he picked his nose (as was his habit) unconsciously at that time. Secondary eruptions appeared soon after. Glandular enlargements of the head also followed. Under anti-specific treatment a good result was obtained.

M. D. LEDERMAN.

### **Endothelioma (Adenoma) of the Base of the Tongue Simulating a Struma of the Tongue—J. E. SUMMERS, JR. (Omaha)—** *West. Med. Rev.*, May 6, 1901.

Patient was a married woman, aged thirty-two, with unexceptional family history. Upon ordinary inspection of the pharynx nothing was discoverable, but when the tongue was well depressed sufficiently to cause gagging, an English walnut-sized growth was plainly visible. Under partial chloroform narcosis, after doing a precautionary tracheotomy, the tumor was removed with scissors. Patient left the hospital two weeks after the operation, and has remained well. On examination the tumor was found to be: Length, 44 mm.; width, 35 mm.; thickness, 33 mm.; weight, 15½ grams.

Color, whitish red; encapsulated; fibrous texture; nodose in appearance. A long and detailed microscopical examination is given, and the careful study, and "efforts in searching out a proper classification seem to unquestionably place the growth as an 'endothelioma,' comparable with similar growths in the submaxillary and parotid glands."

The pathology, as viewed by various writers, is also given.

EATON.

**A Case of Membranous Angina Due to Streptococci, Followed by Paralysis of the Soft Palate**—M. KESCHNER (New York).  
*Med. Record*; June 1, 1901.

The patient was twenty years old, and had been ill but one day. On examination, the tonsils, uvula, anterior and posterior faucial pillars were covered with a thick, dirty, yellowish-gray, tenacious membrane. Bacteriological examination showed short-chained streptococci, a few staphylococci; no Klebs-Löffler bacilli; a culture in blood serum examined after twelve hours' incubation showed almost a pure growth of streptococci. In a week the membrane had disappeared, but in the interim the patient showed a clinical history of local diphtheria, and gave evidence of profound systemic infection.

After eight days there was a paralysis of the soft palate, but no evidence of paralysis elsewhere. Under large doses of strychnia by the mouth, an improvement was noticed. M. D. LEDERMAN.

**Deformities or Defects in Development from Adenoids**—JOHN. A. THOMPSON—*Cincinnati Lancet Clinic*, April, 1901.

We find in adults who have had adenoids in childhood, narrow slit-like nostrils, with turbinates too small to perform their normal functions. The vertical dimensions of the nose are also lessened by the coexistent deformity of the mouth. A neglected case of adenoids in childhood will in adult life remain a mouth-breather.

The external nose presents appearances of deformity in the shape of a broad and flat root, with a pinched and narrow end.

This condition presents a dome-like arch of the hard palate which increases in height where the condition of obstruction persists beyond the period of second dentition. An arrest in development of the upper lip causing a greater apparent projection of the upper front teeth.

STEIN.

**Pathology of Deaf-Mutism**—J. J. CARROLL (Baltimore)—*Journ. Eye, Ear and Throat Dis.*, March-April, 1901.

St. Hilaire, in a recent publication, collected from medical literature 150 autopsies on deaf-mutes. Numbers of these autopsies were made long ago, when the knowledge of anatomy and physiology was not as far advanced as to-day. The autopsies of the last fifteen years have been more complete and the author gives a summary of the lesions found in the tympanum, membrana, internal ear, semi-circular canals and auditory nerve.

He sums up the data furnished by the 150 autopsies as follows: "The pathology of deaf-mutism varies greatly; all the anatomical alterations of the ear, which are capable of producing grave deafness, have been found in deaf-mutes. But no one organic lesion has been constantly present, and according to the present state of our knowledge, there is no single definite pathological condition which is characteristic of the disease. We need further investigation, more careful and intelligent study of pathological specimens obtained from autopsies on deaf-mutes."

EATON.

**Superheated Air in the Therapeutics of Chronic Catarrhal Otitis Media**—G. A. HOPKINS (Cleveland)—*Med. Record*, June 1, 1901.

This treatment is recommended in chronic catarrhal cases which are characterized by ankylosis of the ossicles. The same idea is carried out, as is followed in the treatment of various joints in other parts of the body, only the face and head are more sensitive and consequently precautions must be taken to avoid unpleasant consequences.

The ear must be cleansed for a few days before the heat is applied. Alcohol was employed for this purpose. Strips of gauze were then placed into the canal, and a large pad of gauze was put over the ear to be treated. The ear was then covered with the canvas-sleeve hot air conductor from the specially devised gas-stove, and a current of air reached the canal at a temperature which gradually attained a temperature of 400°F. This degree of heat was readily borne, but a severe headache at times follows, which was relieved by a dose of codein. Other local treatment was applied through the Eustachian tube at the same sitting. Good results are recorded.

(The abstractor would suggest the use of ice-cloths or bag to the head while the heat was being applied to avoid the annoying headache).

M. D. LEDERMAN.

**Protargol: Some of Its Uses in the Nose and Throat**—WILBUR F. SKILLMAN (Baltimore)—*Journ. Eye, Ear and Throat Dis.*, March-April, 1901.

According to the author, for all ordinary purposes in nose and throat work, one, two, five, eight and ten per cent solutions in water are sufficient. These solutions are permanent, and do not decompose from exposure to light, heat or air.

In acute rhinitis a two per cent solution sprayed into the nose was found to often produce brilliant results. In acute and subacute rhinitis in children a two per cent solution was found to be too irritating, and a one-half per cent to one per cent solution was used.

In chronic rhinitis the results were not marked. In chronic rhino-pharyngitis and in chronic pharyngitis the results were as good, if not better, than with other forms of treatment. The treatment was started with a one per cent solution rapidly increased to ten per cent.

In the treatment of acute laryngitis, the results with protargol were not gratifying, and the cases did not seem to improve nearly so well as under other plans of treatment. The treatment of chronic laryngitis by the drug was found to be very satisfactory. Starting with a two per cent solution applied to the larynx by a mop or spray, preferably the latter, the strength of the solution was gradually raised to ten per cent.

EATON.

**An Effective Electric Trepine**—S. S. BISHOP, M.D., (Chicago—  
*Journ. A. M. A.*, March 30, 1901.

The accompanying cut shows the exact size of two electric tubular saws, or trephines, the smaller of which is the one in common use in surgery of the nose in its connecting cavities. This instrument is capable of rendering excellent service where little work is to be done; but it has several serious faults which the writer has overcome in devising the larger trephine.



In removing a large and long spur from the nasal septum, it is necessary to trephine through the center of the spur, then above and below the center in lines parallel with the first section, if the small trephine is employed. If the spur is longer than the tube of the trephine, the instrument ceases to cut as soon as it penetrates the distance of its own length, for the portion of the spur that enters the tube fails to pass out of the counter-opening as fast as it enters the tube, and it prevents the saw from entering further. This necessitates withdrawing the trephine, removing the cut portion of the spur and readjusting the trephine for proceeding with the cutting. Meanwhile the field of operation is likely to become covered with blood, and more time is lost in removing this in order to see what tissues one is attacking.

The large trephine has a counter-opening as capacious as can be made without sacrificing the strength of the tube, so as to allow the contents to pass out as fast as they enter. It is much longer than the average spur, so that it would operate more satisfactorily than the small trephine, generally, even if the counter-opening were smaller. Its generous diameter renders it necessary to drive the instrument through the tissues fewer times in order to remove a given amount of the growth.

In operating on the maxillary antrum the large trephine gives better results than the other. By passing the large instrument once into the antrum a canal of good size is obtained. Formerly I have passed the small one twice, and more times in some cases before obtaining a sufficient opening for free drainage and efficient treatment. The large trephine is well adapted for opening the frontal sinus and the mastoid antrum.



**Note on the Treatment of Otorrhea—DAVID WILLIAM AITKEN—***The Lancet*, April 20, 1901.

Although the method is quite prompt in its effects upon acute otorrhea, its benefits are greatest in old-standing cases where the mastoid has become infected. The appliances required are a probe, some antiseptic lotion, and some absorbent cotton. The best probe for the purpose has at the end two spiral teeth which, while they hold the wadding firmly, permit of its easy removal by rotating the stem counter clock-wise. The first step is to pour into the ear some of the lotion. Then take as large a plug of wadding as is deemed sufficient when screwed upon the probe to easily fit the meatus. It is now possible to make the probe and ear canal a suction syringe. The plug of wadding which forms the piston is gently pushed in and then withdrawn. If it is found to be either too large or too small another can be at once substituted which acts both easily and also fits close enough to force some of the fluid before it. This fluid reaches both the attic and also the mastoid recesses. At any rate, on the first withdrawal sufficient vacuum is produced to allow the lotion to enter the accessory cavities. It will surprise anyone who has not carried out this procedure to note how much discharge and hébris are brought to the surface, even after syringing and swabbing have been efficiently performed. After several repetitions of the maneuver, the head each time being turned to the opposite side to permit of emptying the meatus, the lotion will well up clean. Now, one can get any medicament to the clean surfaces. Begin with chinosol, iodoform, or amyloform in alcohol, which, in the author's experience, is best in the absolute state. It is practically painless in almost all cases, and in the exceptions the smarting is but momentary. Its advantages are: (1) It acts promptly upon the poly-poid growths; (2) it is a most satisfactory antiseptic; and (3) as it evaporates it leaves a dry surface. This is most important. When the solution has been poured into the ear the process with the "piston-rod" is repeated several times. Thus the fluid is forced into all the recesses. That this is so is seen by the prompt improvement both in the local condition and also in the constitutional state. Of course, discretion is used as to the nature of the drug selected in the progress of the cure, according to the requirements—stimulant, astringent, etc.—of the case. It is unnecessary to select examples. Suffice it to say, that many cases have been treated, and that in some the patients have probably been saved from the somewhat serious operation of trephining the mastoid.

STCLAIR THOMSON.

**Poisoning from the External Use of Aniline Oil—STCLAIR THOMSON—***The Lancet*, April 20, 1901.

Equal parts of aniline oil and rectified spirits having been recommended as a vehicle for cocaine in order to produce local anesthesia in the ear.\* Dr. Thomson prescribed a 10 per cent solution of co-

\* Dr. A. A. Gray, *The Lancet*, April 21, 1900, p. 1125.

caine in this menstruum for a colleague suffering from furunculosis. A small pledget of cotton-wool moistened with this solution was used at bedtime and the patient slept well. Next morning, as the pain threatened to return, he again made use of the drops about 5 a. m. At 7:30 a. m., while still in bed, he quite accidentally noticed a peculiar blueness of his finger-nails, and his wife remarked that his face was also blue. The face and hands were found to be of a decided dark blue color, and this was noticeable in the skin under the finger-nails and on the lips and tongue. There was no fever or mental disturbance. The pupils were normal. The respiration was quiet and easy. The pulse was small and somewhat increased in frequency, and when Dr. David Lees had examined the heart the left ventricle was enlarged to two finger-breadths outside the left nipple line. The patient had not previously had any heart trouble, and there was nothing discoverable in the heart or lungs to account for the cyanosis. It was therefore ascribed to the toxic effect of the aniline oil on the red corpuscles. The blue color gradually disappeared in the course of the day. The area of cardiac dullness again became normal, and no murmur was discoverable. Reference was made to a communication made to the Académie de Médecine in July last by M. Landouzy and M. Georges Brouardel describing the cases of ten children who were seized with prostration, pallor, and blueness soon after wearing yellow shoes which had recently been coated with a pigment found to contain 90 per cent of aniline. When this dye was applied to the shaven surface of the skin of guinea-pigs and rabbits they died asphyxiated in from twenty-four to thirty hours. Some unpublished cases of Dr. Kelynack described similar symptoms, together with gastro-intestinal catarrh and anemia in chronic cases, among those employed in aniline works. Evidently the skin readily absorbed aniline, and this might give rise to alarming symptoms, which could not otherwise be explicable.—Dr. Charles W. Chapman said that he was the patient whose case had been described, and remarked that the most important point seemed to be the cardiac dilatation, which had called for prolonged rest. Unless this were remembered in future cases, a patient by getting about too soon might inflict permanent damage on the dilated heart. He also remarked upon the smallness of the dose.—Dr. Lewis G. Glover, alluding to Dr. Thomson's remark that the symptoms reminded him of poisoning by antipyrin, asked whether any cardiac dilatation had been noticed in this connection. He referred to a case in which large doses of exalgin had been taken, and he had noticed marked blueness but no cardiac dilatation.—Dr. StClair Thomson, in reply, said that in a case of antipyrin-poisoning he had noted some cardiac dilatation, but, as the patient was suffering from typhoid fever, the dilatation might possibly have been caused by the fever.

STCLAIR THOMSON.

## BOOK REVIEWS.

**Coakley: The Nose and Throat.** The Diagnosis and Treatment of Diseases of the Nose, Throat, Naso-Pharynx and Trachea. For the use of Students and Practitioners. By CORNELIUS G. COAKLEY, M.D., Professor of Laryngology in the University and Bellevue Hospital Medical College, New York. New (2d) edition. In one handsome 12mo. volume of 556 pages, with 103 engravings and 4 colored plates. Cloth, \$2.75, net. Lea Brothers & Co., Philadelphia and New York, 1901.

It is not surprising to us that the demand for Dr. Coakley's eminently practical and up-to-date manual has so quickly called forth a second edition, and we can only repeat our commendations made with the appearance of the first edition.

In the revision, the author has added a new chapter on Affections of the Upper Respiratory Tract in the Infectious Diseases, together with several colored plates and additional illustrations. M. A. G.

**Principles of Surgery.** By N. SENN, M.D., Ph.D., LL.D., Professor of Surgery in Rush Medical College in Affiliation with the University of Chicago; Professional Lecturer on Military Surgery in the University of Chicago; Attending Surgeon to the Presbyterian Hospital; Surgeon-in-Chief to St. Joseph's Hospital; Surgeon-General of Illinois; Late Lieutenant-Colonel of United States Volunteers and Chief of the Operating-staff with the Army in the field during the Spanish-American War. Third Edition. Thoroughly Revised with 230 wood engravings, half-tones and colored illustrations. Royal Octavo. Pages, xiv—700. Extra cloth, \$4.50, net; sheep or half-russia, \$5.50, net. Delivered. Philadelphia: F. A. Davis Company, Publishers, 1914—16 Cherry Street.

To the broad-gauged and progressive otologist and laryngologist the great import of a clear and proper understanding of the general principles of medicine and surgery is apparent. In the publication of this volume the author has departed from the regulation plan and construction of recent works on surgery in that his main purpose is subserved in presenting a systematic treatise of surgical affections with special emphasis directed to their histological, pathological and etiological factors.

The work is comprehensive and yet exhaustive. It might have equally well been called "A Treatise on Surgical Pathology," planned along the lines of recent research and twentieth century surgery. M. A. G.

**Diagnostic et Traitement des Maladies Du Nez, "Rhinoscopie."** Par LE DOCTEUR J. GAREL, Médecin des Hôpitaux de Lyon. Deuxieme edition. J. Rueff, Éditeur, Paris, 1901.

In this charming little book, devoted exclusively to diseases of the nose, the author has succeeded admirably in condensing all the rudimentary and well-established facts connected with the science of rhinology without sacrificing clearness of description to brevity of style or omitting anything essential.

To subjects that have recently received considerable attention from rhinologists, or diseases whose treatment is still a matter of dispute, he gives proportionately greater space and carefully discusses the proposed methods of treatment, clearly stating his reasons for preference.

The chapter on diseases of the accessory nasal cavities is especially well worth reading. Garel's favorite method of treating empyema of the maxillary sinus is by catheterization with Heryng's instrument, which he states can be introduced in sixty per cent of the cases. Through this instrument the cavity is thoroughly syringed with boric acid solution and no operative measures are resorted to unless this simple and painless method fails to effect a cure. The sinus is never opened in uncomplicated cases as a mere matter of diagnosis.

After mentioning the names of the various authors who have devised operations for the correction of deflection of the nasal septum he describes only two, those of Asch and Gleason. However, he states that radical operations for the correction of septal deflections are but infrequently employed upon the continent. Garel prefers electrolysis as described by him at the congress in Paris, 1889, because there is less danger of sepsis; but states that if as the result of electrolysis a perforation of the septum results it occasions no inconvenience. This is only true of perforations not in the anterior third of the septum and in America sepsis rarely or never occurs after a radical operation for deflection of the septum. Electrolysis has been almost entirely abandoned in America, even for ecchondroses, because the operation is more painful and tedious and gives no better results than the saw or knife. In deflections of the septum, it in no wise changes the condition of the wider nostril, the condition of which often causes more complaint on the part of the patient.

E. B. G.

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